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TOMORROWS COMPUTERS

SCHOOL WARS

IBM's Multi million $$ drive with Darth Vader

$12M Firm Run by Chief's PC

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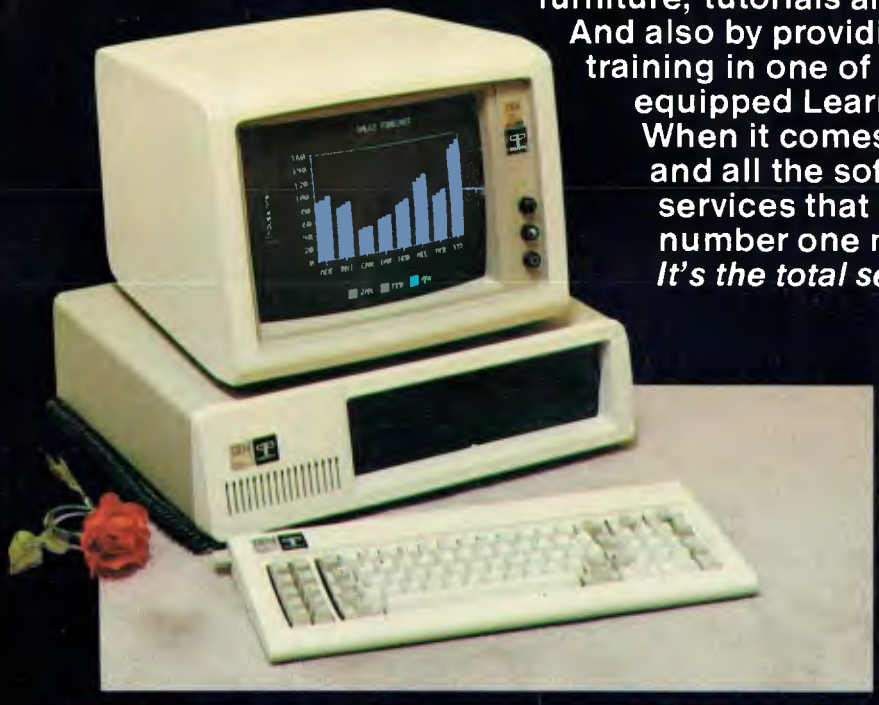

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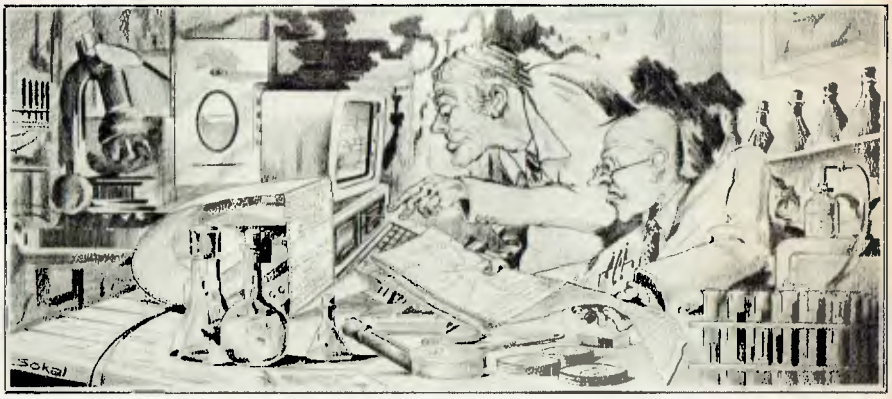

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Ken McGregor
Managing Editor

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Editorial

■ Education may never be the same again. The multi-million-dollar drive by IBM Australia (Big Blue isn't saying *exactly* how much) using Star Wars themes and reported in this issue is the start of something very big.

It's touted as a massive consciousness-raising exercise to increase the use of computers as tools in education. It is not, IBM claims, a massive drive to get the IBM-PC into schools in place of the current education hardware top-sellers, Apple and Barston-BBC.

IBM is only now releasing details, but Today's Computers began tracking the story some time ago as probing revealed that the education battle is definitely on.

Of some $10 billion spent in Australia on education every year, $1 billion goes on equipment and supplies. Of this, we estimate that $80 million is already being spent on computers. This could hit a quarter of a billion dollars by 1990. Big bikkies!

One arch IBM competitor, Control Data, has some major plans of its own. Its first education software is here now in a $2.5 million foray into this market with company heavies such as Alan Rodda involved. Rodda – a 14-year Control Data pro – believes that parents rather than teachers could play the key roles in deciding who wins. So read our reports for the best and most comprehensive cover of the biggest education battle in our time.

■ When we began Today's Computers, our superiors said: Get off your backsides (or words to that effect) and report on all the gung-ho executives who are running their corporations by Personal Computer. We loosed dozens of in-depth investigators into the corridors of power, and they came back without finding a single example.

So we think our story on Andrew Kaldor running his $12 million operation with a transportable PC is a real breakthrough. But if you know a lot more than we do, please tell us. Ring me now on (02) 235 6515 if you know of another Kaldor.

Ken McGregor

■ Got any problems selecting or installing a small computer system? Why not ask us if we can help? Your identity – individual or corporate – will be kept completely confidential. Your request will cost you postage only and we will answer your queries with advice from crack independent experts such as Jennifer Adelstein of Focus Research. Call me, again on (02) 235 6515, or write.

■ What's the biggest general concern of corporate ceiling-slappers these days? Inflation? Keeping staff? Interest rates? Luncheon vouchers? Forget it. It's the dreaded personal computer and the growing, bloody battle to decide who will manage its inexorable spread on to executive desks. Will it be the data processing manager? Or some non-computer executive?

In the US data processing managers, who were a little slow at first to think small, fought back and have already regained control of most computers outside the computer room, as we report in this issue. Down under, however, the battle is just beginning. And some experts such as Peat, Marwick's Bruce Greene (of its Sydney office) believe DP managers will lose. Look at the score in Australia in our next issue. The battlefield is getting bloodier all the time, according to Keith "Canary" Jones of consultants Sales Career.

■ John Sprouster and Bill Curtin, at Nashua and Fordigraph, have, separately, franchized off what were big internal operations. To discover the purported user benefits, read this issue.

■ There's more than one way of financing a small computer purchase. We offer some alternatives to that bank loan in this value-packed issue.

■ Apple's Macintosh is going gangbusters in the US. Thanks largely to Microsoft (and the vivacious Linda Graham's team in Australia) some good software is appearing. But what's gone wrong with the 3½ inch disk supply? An explanation would be in order. When will we see a second viable manufacturing source apart from Sony?

■ Computer Power is about to launch its CLIRS electronic database for legal-eagles, et al. Steven Hutcheon reports the foray in depth. But other electronic databases for the law area also out, such as CCH from ACI Ausinet. And Butterworths, with its Lexis system, and others such as the Law Book Company, are close.

With a rich user clientele up for grabs in the law, a Battle Royale is promised. The stakes, as Computer Power's Roger Allen and ACI's Tony Klingender would agree, are high. But what's in it for the users?

■ We welcome aboard this month a copy editor, Gary Ross, and a whole lot more outside correspondents from throughout Australia and New Zealand.

Why aren't you aboard? No-one has been able to retire as a result of writing for us, but we do have real money to pay for non-technical reports of value to computer users in business, government and education. C'mon out there. Try me.

– Ken McGregor

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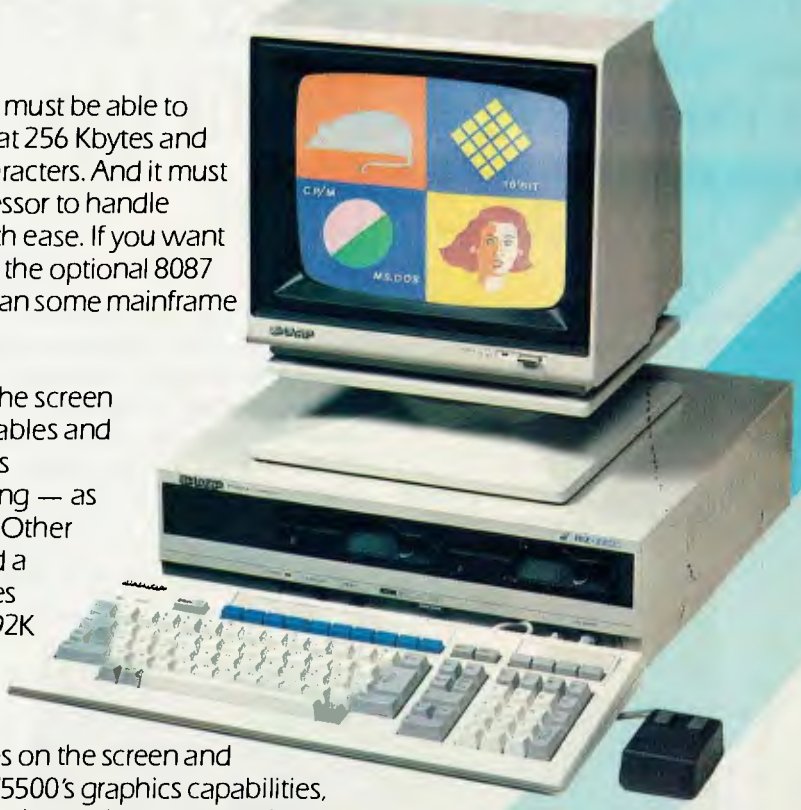

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Julia's Skyrocket Hasn't Peaked Yet: Profit Up 200% In 2 Years

Julia **Delavere,** Sydney-based manager Control Data Institute, enjoys the occasional game of pool but also oversees some $2 million worth of educational training business.

While at CDI since 1982, Julia has enjoyed a 80% hike in revenue, while profit is up by 200%. CDI, an educator service of Control Data Australia, claims leadership in the computer training marketplace with a very high record of success in graduate placement. "Finding jobs, which is the key to our continued future, has grown," she says. "This year we will place about 98% of graduates in a total of 250 positions." For her pains, Julia was named CDI International Manager of the Year at a world CDI conference in Acapulco this year.

Madeleine Long has joined software package distributor Imagineering as product manager, Lotus 1-2-3

"Support and backup are excellent – we have great direct contact with Steve Bonner, and no problems," says Keith Stewart, a pioneer of personal computer retailing in Australia. Keith runs Seahorse Computers at Camden, south of Sydney.

"Service is very, very good. It is a rarity to have problems with any Nashua disks. When there are, replacements are implemented very quickly," says David Bates, founder of Delta Computer Systems, a PC dealer at Parramatta west of Sydney. A one-time Burroughs Australia high-flier, Bates started Delta 2 years ago and today sells Sirius, Apricot, and Kaypro systems.

Both were commenting on perhaps the biggest success story in small systems and supplies in Australia, Nashua Australia's about-turn in the past 10 years under John Sprouster. A tennis enthusiast and former head of the Office Equipment Association, Sprouster can show some startling results from his franchising strategy.

But perhaps the biggest gain is reflected in user reaction.

Says Mike Tolnay, technical support

CDI's Julia Delavere – top results in the back pocket.

manager at Sydney-based NZ Insurance: "We buy 300 megabyte disk packs from Nashua Discs. In over 2 years we have had very few problems. The disks may be a little more expensive than competitive brands, but they are high quality."

The Tolnay operation is based on Perkin Elmer hardware.

Sprouster claims there are major user pluses in a large company like Nashua going franchise. He has already vigorously implemented his strategy in all Australian and New Zealand major cities and aims now to spread this to key regional centres.

"Responsibility, authority and ownership are closer to users at lower cost," says Sprouster. "A client's advantage is that cost savings are passed on, the buck stops at the local location – say Perth, for example – and a client gets easily to someone in authority.

"We have removed wasteful activities that go with multi-products, multi-dealer locations and product specialization."

Sprouster believes that business entrepreneurs won't work on salaries. You've got to give them their own show –

Nashua's **John Sprouster** *and wife,* **Pam,** *relaxing at their historic Hunters Hill, Sydney, home.*

hence his current 15 franchise companies and plans for an additional 35 in the next 24 months. Not to mention 2 companies specialising in computer products only, Nashua Computer Discs Sydney (Steve Bonner) and Nashua Disks Melbourne (Ian Brimmer).

He explains that Nashua began franchising off its operations during the 1973-74 recession. Copying products were mostly involved, with computer products, such as diskettes, in more recent years.

"We found you get the best people, because they have their own business, and you get sales at low cost – our headquarters bureaucracy and paperwork can be chopped dramatically," says Sprouster.

Isn't Nashua passing the buck in the eyes of unhappy users who now don't have Nashua employees to beef at?

"We load very tough specifications on anyone who gets our franchise," claims Sprouster. "They have to perform within these guidelines or we discipline them." He claims that, 10 years later, he has had to revamp 2 franchised outsiders. There's a detailed series of standards.

Adrienne Lambert *is new aboard as account manager, information retrieval, in Sydney for ACI Computer Services's Ausinet operation.*

Whatever, Nashua figures speak for themselves.

Excluding its carbonless paper manufacturing activity in Australia, Nashua in 1973 showed a pre-tax $1.068 million profit, returning 13.55 on total assets. Total employees were 595, with a salary bill of $850,000.

In 1980, pre-tax profit was $4.268 million, return on total assets was 41.2%, employees numbered 237 and the salary bill was $474,000.

Nashua Australia suffered a "severe hiccup" in 1982, according to Sprouster, when it was hit by another economic recession and a poor (since corrected) product line in copiers.

For 1984, Nashua Australia is budgeting for a $2.8 million pre-tax profit, return on total assets of 35.59%, a wage bill of $300,000 and 128 employees.

Retail value of Nashua's office products in 1972 was $9.655 million, in 1980 $42.007 million and in 1984, $43.44 million.

It is a major force in the disk supply sector for personal and small computers, under another executive, Tony Little, and this year it has disclosed a major software conversion service eventually to be available via all its franchised companies.

Other initiatives are understood to be mooted, via the franchised companies, later this year. "We believe franchising is really the only way to go," says Sprouster.

TODAY'S COMPUTERS

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COVER STORY/KEN McGREGOR

SCHOOL WARS

IBM Australia has revealed that a multi-million-dollar Star Wars computer technology travelling education show is touring primary and high schools.

The show includes a prefabricated dome the size of 2 or 3 tennis courts, 2 infectious Star Wars characters (from the hugely-successful movies), a massive mock-up of a computer keyboard and over 40 IBM Personal Computers.

IBM has also quietly developed special software to demonstrate how computers can aid learning in a wide range of subject areas.

Two of IBM Australia's most senior executives, Brian Finn and Tony Bowra, in separate interviews given exclusively to Today's Computers, claimed that the big campaign – which could last through the 1980s – was not a "hard sell".

They said the Star Wars initiative, agreed upon quietly last September (after computer competitors Control Data and Apple optioned out of similar deals), was simply aimed at "upping awareness of the potential applications of computers throughout the entire teaching process".

Managing director Finn said Australia had half as many people benefiting from higher education as many of the nations it was usually compared with. "This is not good enough," he told Today's Computers. "There is a need for a lot of people, educators, administrators and others, to do something. The main impediment appears to be lack of the desire to act, not the logistics.

"Look at the numbers of youth in unemployment rather than higher education. Something is wrong. There does not seem to be a shortage of teachers."

In a separate interview, Tony Bowra said the IBM Star Wars education show operation began on June 4. Three visits a day could be handled by children or teachers. He emphasized that the dome was staffed entirely by teachers.

"It is a literacy tack we are taking – to remove the fear of flying, ie, help as many people as possible touch a computer," Bowra said. "We believe there is

How Darth Vader and the Star Wars team are helping to capture the hearts and minds of the next generation of Australian computer users for IBM.

The IBM education show dome. Inset above: IBM's Tony Bowra (centre), Gerry Anthony (left) and Command Performances' Ken Copeland (right) surround a model of the dome. Inset right: Darth Vader.

Star Wars goes to school

Star Wars villain Darth Vader and the world's most profitable corporation, IBM, have concocted an ambitious plot to dramatically raise the level of computer awareness throughout Australian primary and high schools.

Launched under top-secret wraps more than 2 months ago, the project has treated thousands of children and their parents at school sites in Sydney's western suburbs to a travelling technology circus. The show combines the excitement, colour and charisma of the epic Star Wars movies with computer technology and personal computers.

At an undisclosed cost (it's certainly several million dollars) IBM Australia plans to move its show through all major schools in Australia over a period of several years, treating some 5,000 children a week to entertainment, demonstrations and hands-on-activities involving both parents and children.

On show is a huge domed flying saucer housing a theatre and a wide variety of computer displays. IBM's attitude is that the operation is but part of its current $10 million program of putting promotional or "donated" dollars into education.

The difference with the Star Wars thrust is that it's a soft-sell "awareness" pitch to raise the general level of knowledge of the potential applications of computers in all activities involving teaching and education.

Two days before this issue hit the newsstands in Australia, IBM officially disclosed its Star Wars blitz. (This article was begun long before that date when probing by Today's Computers staffers headed by Ken McGregor penetrated IBM's veil of secrecy.)

great demand and great interest in computers in the community."

He denied any direct sales activity was involved in the Star Wars program, emphasizing that no IBM staff would be on hand and local IBM-PC dealers would not be allowed to enter the dome and sell.

"The fear factor of computers has got to be removed," he said. "We knew this before we struck on the Star Wars idea last year. Then we had a problem but no solution. Now we have a solution, we believe, which could well fix the problem."

Bowra said the mobile dome would stay at a school for about 4 weeks. Children or parents would take about 1½ hours to see through the dome. Students and parents from nearby schools would visit a selected school in an area which would host the education show. Plans were to visit 10 NSW sites this year – when Today's Computers carried out these interviews the dome was at St Marys west of Sydney.

Next year NSW country schools will be visited and in 1986 the travelling dome could visit key schools in Victoria and Queensland. The "eastern seaboard program" would finish by 1987. IBM might then consider moving the show to South and West Australia.

Bowra is credited with helping push the education show approval – with a construction and creative contract to an outside, non-profit-making company, Command Performances – via IBM top management last September. Another IBM staffer and one-time teacher, Gerry Anthony, has supervised the detailed preparations.

Bowra, executive director, technical operations, IBM Australia, said various curriculum modules, such as English, maths, music, art, and social science would be on personal computers dispersed around the Star Wars dome for visitors to try them.

Despite IBM's claims, its Star Wars show is regarded by many as but the latest foray in a continuing scramble by hardware and software vendors to position themselves in a massive new market for computer systems in the late 1980s.

Entrenched heavily already are Apple Computer, Applied Technology-Microbee, Dick Smith, Commodore, Tandy, Control Data and Digital Equipment. More big guns are on the way, including NEC, Hitachi, Pitman, John Sands, Ashton Scholastic and Wang.

ACI Computer Services is already into tertiary institutions with a wide range of electronic databases, Lothlorien, with the irrepressible Tillie Eakin, has a library package for high schools, Mary Ann and John Paynter are involved with other packages and Dick Smith is involved with the Association of Independent Schools (AIS). Active Learning Systems of Brisbane has its One World programs.

THE FORAY WAS part of a multi-donation strategy by IBM Australia...

But most teachers appear to be running scared and Education Departments have diverse policies on hardware selection. Unfortunately they have to date put software selection second, with the exception of Tasmania.

Big computer suppliers, such as ICL, would like more of the cake and book suppliers such as the ANZ Book Co, are optimistic. Control Data Publishing has begun a $2.5 million "courseware" program and Barston, with its BBC micro computers, has grabbed a strategic position. It is second only to Apple in number of installations.

Apple, with its lead threatened by the IBM foray, probably has most to lose or gain. Its foundation is off and running and it will be interesting to see if chief executive, David Strong, will delegate more than he has done previously to properly counter-attack.

Dick Smith is angling for a large Federal Government subsidy to set up an electronic listing of available software for education.

IBM-PCs are not cheap. Obviously, Big Blue is counting on schools moving to higher-priced micros with a greater range of applications in the future. The education show could influence school thinking here, a point IBM will not concede.

At IBM, neither Bowra nor Finn would reveal the cost of the Star Wars foray, nor would Command Perform-

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A boom at the end of the tunnel

Software – or programs – for education is the "next explosion industry," according to Alan Rodda, marketing manager at Control Data Publishing. And, says Rodda, parents rather than teachers could play the major role.

Education software, or courseware as Control Data likes to call it, has got to be entertaining. Rodda claims that a major shortfall of the education process is that there is not enough detail in children's courses. Children do not "get involved enough" in the education process.

"Textbooks are bland, dull and don't come alive," he says. Rodda claims there is too little audio visual material used in courses. "Computers have tremendous power to help write courses and make them highly interesting," he says.

US market

Control Data has studied the US market for education and says products are pitched at the home, not the school, and they include pitches at parents. "We found that kids respond to entertaining packages and sometimes cause changes in curriculums," he says. "Parent influence is big." Hence Control Data's current advertising pitch: "Give your kids the education you never got..."

Rodda estimates that the market is worth about $600 million a year in the US. He says that with the world already tuned to the leisure industry, changeovers in jobs will be massive. "The major fear of parents is said to be whether their children will have a future," he adds.

"I figure that of the $10 billion spent a year on education in Australia, about $1 billion goes on goods and services, including computers," says Rodda. He said the courseware content of this last category currently was very small. It would, however, he forecast, "explode".

Control Data Publishing, headed up by Greg Phillips, has announced a $2.5 million program to create, manufacture and market educational software in Australia.

Control Data's Alan Rodda, his wife Julia, and their 5-year-old daughter, Suzanne, at their Camberwell, Melbourne, home, with, of course, a home computer.

ances' chief executive, Ken Copeland, in a third interview. Finn indicated earlier that he would like the cost known.

Bowra and Finn did say, however, that the foray was but part of a multi-donation strategy by IBM Australia in education. The strategy also covers tertiary institutions, research and teaching departments.

Other initiatives include:

- February 22 – IBM announced a $1 million donation to the Joint Microelectronics Research Centre for the University of NSW and RMIT Victoria.
- April 16 – IBM announced a $2.5 million computer literacy model program to aid the education of teachers and high school students in 3 States: New South Wales, Queensland and South Australia.
- July 5 – IBM announced a $1.7 million donation for a computer-aided design and manufacturing centre at Swinburne Institute of Technology.

Thus all these initiatives have been announced this year. As well, IBM has disclosed that it will be recruiting 250 university graduates in 1984. This is 3 times the number the company has recruited in any previous year and makes IBM one of only 2 Australian companies currently recruiting graduates on this scale.

Graduates were a subject Finn warmed to when discussing non-commercial spin-offs from the education program.

"Let's face it", he said. "We are a potential employer and we want to raise graduates' awareness levels of computers.

"I believe our education show involving Star Wars themes is an excellent one. General awareness of what computers can do is a dilemma for IBM; we do have limited resources."

Finn said the Sydney company, Command Performances, was selected on various critieria: "It had excellent credentials, it was and is a non-profit organisation. And Command Performances wanted a partner to support them, not to tell them what to do."

Command Performances' ecstatic

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MicroPro

Another industry leader, supplier of ***Wordstar,*** the standard against which all other micro word processing packages are compared. Continuous development keeps ***Wordstar*** at the forefront.
Any product from MicroPro has the seal of quality.

SORCIM

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* April 2, 1984 "Infoworld" Top 20 microcomputer software companies by 1983 sales figures. MicroPro #1, Digital Research #4, Ashton-Tate #6, Sorcim #13.

† Concurrent PCDOS is available for the IBM PC, PC-XT and all the close compatibles. It will also be released on most other micro market leaders.

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Home work versus The Force

In 1978, when on assignment in the US, senior IBM Australia heavy Tony Bowra encountered a problem with homework assignments to be carried out by his eldest son, Robin, 17.

Robin was expected to compile essays on written subjects, such as History and English, in type form as a requirement of the course at St Staples High School, Westport, Connecticut. All other students at St Staples had previously learned to type. Many were also familiar with computer keyboards.

Bowra notified the school his son couldn't type and Robin got dispensation to compile his essays in longhand.

"This situation had stuck in my mind," Bowra says today. "The American kids learn to type as part of their curriculum, Australian kids don't.

Brian Finn

"When the Star Wars education show proposition came up last year, I remembered St Staples High and wondered what was really being done in Australia? We now have a great chance to penetrate the masses."

Brian Finn, IBM chief executive in Australia, has 5 children who carry out a wide variety of homework tasks. Often, Finn casts an interested eye over what each does.

"Computers could play a part in aiding my kids in all subjects," he says.

"People are pre-occupied with the need to teach computers as a subject in schools. But the real opportunities are to use computers to help teachers to teach.

"You could teach virtually any subject with help from computers. Computers could be used on a broad front, but could be almost invisible in doing so, the way video or television can be integrated into a course.

"Our education show is not about learning computers – it is about integrating them in all subjects."

Copeland said his company held Australian rights to Stars Wars material. "The Education Department in NSW was very keen and encouraged us with the project," he said. "We initially had approached Apple and Control Data separately, but when IBM picked up the idea it moved faster.

"We have aimed at a classroom atmosphere in the 21st century. We built an inflatable flying saucer, a gigantic computer keyboard, tiered seating and walk-throughs.

"We wanted a good, entertaining history of computers. And IBM and us wanted hands-on availability with talking computers, a crane-controlled computer, a writing computer and a computer linked to video.

"The education show has all this and more. It is unique in the world."

Finn and Bowra confirmed that while IBM has a much larger "Computers for Schools" program in the US, the Australian education show was very different to anything else the $US40 billion-a-year behemoth has done in any other country.

"I guess you could say the education show is an integral part of a 10-year strategy by us to bolster awareness of computers and up that low percentage in Australia of youth without higher education," said Finn.

Australian schools may never be the same again, thanks to the likes of E-Wok, Darth Vader, 2 characters called Syl and Con, and those 3 big initials that signify Big Blue.

More than 150 experts have worked quietly on the IBM education show. The dome, or flying saucer, contains a theatre and distributed demonstrations throughout the remaining internal area.

There are 2 Star Wars characters – Darth Vader and E-Wok. Syl and Con are 21st century schoolkids. Vader is concerned about the growth of The Force (for good). E-Wok is a computer literate. Con is lovable and computer friendly. Syl is a computer cynic.

Syl and Con (silicon chips?) are space-age kids.

Visitors, that's kids only, are given specific projects to complete during their visit. There are always at least 6 teachers in attendance. No IBMers.

Elsewhere within the dome, some 40 IBM PCs are available to provide "hands-on" experience for all. It takes about 20 men to move the dome. In late August the dome was re-located to central Sydney, for public viewing, following IBM's official announcement of the show on August 13.

Here is a brief summary of the computer displays within the show:

SIX PANELS: There are 6 illuminated panels in total, 2 filed with stills from the Star Wars trilogy. The other 4 panels cover the history of computing from the abacus to punch card machines, through to modern 3D graphics terminals.

COMPUTER COMPONENTS: A static display intended to show the progression of computer components, it features the first valve logic modules through to high-density silicon chips. Kids are able to see a definite progression in logic technology. There is also a rare exhibit of core memory – one of the very earliest electronic computer memory devices.

SOFTWARE: IBM has developed special software for the project on art, music, maths, English and geography. It is intended to show children that learning with computers is fun.

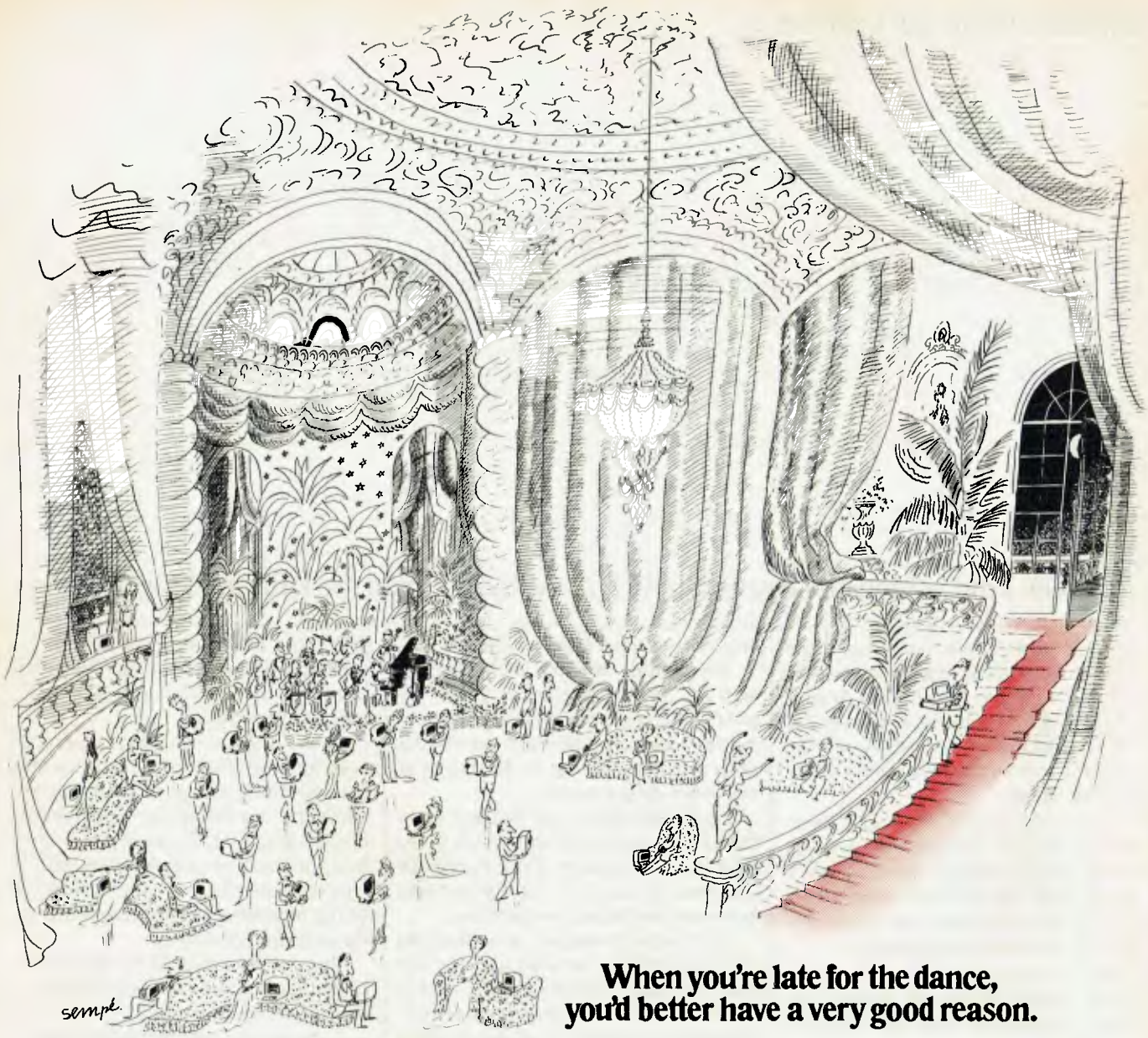
DISPLAY PCs: There are 5 IBM personal computers on display, operating the following programs:

Digitiser: which lets kids draw graphics on the computer screen;

Robot: which demonstrates the use of a computer-controlled mechanical arm to manipulate objects;

Video Control: the computer controls a video tape player which replays segments relevant to kids' answers to questions on the PC:

Colour Plotter: which gives the computer the freedom to draw free-form pictures in many colours.



When you're late for the dance, you'd better have a very good reason.

The party started about three years ago for the personal computer.

And there was dancing.

But there wasn't much talking. Because as more and more computer companies arrived, there were some very real compatibility problems.

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An admittedly attractive arrival.

But when you get there late, you'd better have something important to bring to the party.

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KEYBOARD 84 keys, 6 ft. cord	CLOCK Time-of-day with battery back-up

SPERRY

The Sperry PC.
What the personal computer should have been in the first place.

SPC 1

Computers Used To Scare Me

But then I discovered Dr Logo and now I'm hooked. Oh, and the kids are delighted, too.

Let me confide in you. I'm one of those parents who have nightmares about computers. Whose fingers turn to jelly when the infernal machine tells me I'm a fool. Who uses spreadsheets and the company accounting system only under extreme duress.

I also corner teachers at open days, and interrogate "computer experts" at dinner parties, asking: "What should I buy the kids that will keep them occupied, be good for them, and not just a myopic, mind-destroying game."

Me, a classic conscience-stricken parent scared witless by hi-tech and caught between the devil and the deep blue sea. Imagine my emotions when I started playing with *Dr Logo* on an IBM-PC. Put in the disk, press a key and you're off. None of this A> gobbledegook.

Within a minute I'd drawn a coloured line. The turtle graphics are very clear. Forward 10 units, right 90° repeated 4 times became a square. Eureka! I'd learnt to program: sheer pleasure had taught me a "procedure".

As fast as I could turn the pages with one hand and type with the other, I'd drawn a series of squares in an elegant window pattern. The feedback was immediate, and I was programming the computer.

The instruction book was clear, multi-coloured with pictures of how the screen should appear at each stage. At the end of each chapter (lesson) was a summary of what I had just learnt.

Even within my first half-hour session I'd "saved procedures", given "inputs" to "procedures" and "nested procedures" drawing stairs and spirals. All great fun, but teaching me the basics of computer programming.

Now I only get to use *Dr Logo* when the kids are in bed. It's been a race to see who learns the fastest. Even though *Dr Logo* was so easy to use initially, it also has some very extensive facilities.

Logo was developed as a learning tool in the 1970's (see box), and this version has been implemented by Digital Research, one of the major suppliers of software for micros. All of the standard *Logo* primitives are available and a few features that competitive products do not have.

ALL THE standard Logo primitives are available.

There is a split-screen debugging facility which makes it easy to correct mistakes. One part of the screen shows the commands as they are executed, while the other half shows the result. A help command is also provided.

One of the most noticeable features of *Dr Logo* is the high resolution of the display. This makes it easier to see the direction of the turtle during the initial learning phase. It also makes business graphics very useful.

And if you are considering using *Dr Logo* for work then you'll be interested to know that it incorporates some sophisticated mathematical procedures. Double precision floating point, symbols for positive and negative infinity (yes, some people do want to divide 1 by 0), trig functions, logs, inverse and a random number generator.

Because it's designed for the new 16-bit micros you get more workspace and the ability to reorganize it.

Logo is often used for list processing, so it's useful to know that the Digital Research version supports lower case letters as well as upper.

I'm hooked on *Dr Logo*, it painlessly introduced me to structured programming. The kids are delighted, they can now write their own games with games commands like Random, Shuffle, Paddle and Button. Towards the front of our manual is a list of books, magazines and usergroups for *Logo*. This will enable us to extend our knowledge even more.

Dr Logo is obtainable from most reputable computer dealers. It currently requires an IBM-PC with 192K RAM, one or two floppy drives. Color monitor optional. RRP: $277 incl. tax.

Jackie Trendall is an executive secretary, based in Brisbane.

Brisbane's Jackie Trendall in action.

The origins of Dr Logo

The origins of *Logo* go back to the 1950's, when companies like Rand Corporation developed the first list processing languages.

The languages allowed programmers to create their own high-level commands as they went, combining lists of simple instructions to carry out complex tasks. This was quite different to algebraic languages such as BASIC, FORTRAN and COBOL.

Gradually these languages evolved into LISP Processing. But LISP was not an easy language to use, with lines of commands full of multiple parentheses.

So, at the end of the 1960s, a team of educators and computer scientists at MIT developed *Logo* – a baby LISP. The team was directed by Seymour Papert, a man who has done much to popularize the language and demonstrate its power. Like LISP, full *Logo* has strong potential for sophisticated applications and artificial intelligence.

However, *Logo* is best known for its turtle graphics. This entices very young children to program and use a computer. The interactive nature of the turtle has a strong appeal for educators looking for something to compete with video games.

But the ability for users to define their own commands gives insight into its real strength. Students can create their own microworld making their own rules, and discovering the effect of those rules. As a result, the computer allows them to explore their own imagination. The learning becomes student-driven, not program-driven.

There are approximately 10 implementations of the *Logo* language available. For once, sanity prevails, as most procedures written using a particular implementation will also work with all the others. The power of *Logo* has been curtailed by the older 8-bit micro computers. *Dr Logo* is the first 16-bit implementation and gives greater workspace and speed as a result.

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Keeping 'em Down On The Farm

Turtles and mice come home to roost as Outback children aged 7 and up learn to use software. A tiny handful will write serious programs.

An itinerant teacher, part of the School of the Air which serves children in the Outback, introduces the first computer to wide-eyed children in a remote homestead.

In a home science centre of a suburban high school, boys and girls work out a menu and shopping budget on a Microbee 64. Children as young as 7 instruct a "turtle" – the opposite in function to a "mouse" – to roll across a primary school floor.

In scores of ways, Australian children are being introduced to computers, but early gee whiz attempts to turn them all into programers have long since been abandoned. "A tiny handful of them will ever need or want to write serious programs; it's as if people who buy a washing machine should be taught how to design it," said one educator.

Instead, children are being taught to use software. The 3 smaller states have been most advanced in the introduction of computers – Tasmania, South Australia and Western Australia.

All began in the early 1970s, and today have impressive records of familiarizing a big proportion of high school children, and a growing number in primary schools, with these new tools.

In Western Australia, for example, every one of the 140 high schools in the State and about a sixth of the 600 primary schools have computers. At least 800 teachers a year have attended in-service courses; the assembly of Microbee machines is taking place in Perth to serve such a handy market (and others).

The Education Department in Western Australia designs software – being exported to a number of countries – buys in more, and swaps with Tasmania and South Australia, which also writes school software.

There are still courses specifically on computers, an option in high schools, but there is more emphasis on the use of micros in teaching areas such as English, maths, home science, languages, social studies and music. One software package introduced students to spreadsheets, another to word processing.

Special funds have been allocated to remote schools, and teachers from as far away as the Kimberleys 2,000 kilometres from Perth, recently flew to an in-service course.

Computers have been introduced to some of the loneliest schools in Australia, several with as few as 18 or 20 students. Aboriginal children have been found to adapt particularly readily to their use.

The School of the Air, an Australian innovation, was hailed as a great user of that new marvel, radio, half a century ago. It is now used to introduce children to computers. The WA Education Department has assembled several "turtles", which use the Logo language specially developed for primary school children.

With instructions from the computer, the turtles move across a floor and later the concept is transferred to the visual display. Some software is used by children in only their second or third year at school.

The Education Department charges only for materials (mainly the disk itself) where its staff have written the software. If it has been bought, specially negotiated deals provide it for little more than half the commercial price.

The Department with the Systems Research Institute of Australia, even has its own software trademark, Wesoft.

The WA department subsidises purchases of a system on a dollar-for-dollar basis, with Microbees in high schools costing about $1,700, including 2 disk drives, and the BBC Acorns, including a very big screen, $2,200.

All the machines are maintained by the State Public Works Department for the Education Department. There is a busy advizory service for teachers, and frequent visits to schools by specialists.

The early days of proudly teaching children simple programming led to some embarrassing results. Leading authorities in the computer industry say that the effort can be counter-productive – youngsters seeking places in computer companies were found to have picked up bad habits from some school programming. The lessons were no help at all in preparing these children for a career in computers.

Courses now offered have gained from those early experiences and it is hoped that students who take them will at least have a grounding for tertiary studies or other use in computer sciences.

In Western Australia, the department had a hand in modifying the design of the Microbee to make it more suitable for high school use. The resulting orders have encouraged the company to set up an assembly operation in Perth.

The same problems of distance that have prompted the introduction of special programs in such exotic settlements as Halls Creek, and mission schools in the Kimberley region have excluded the possibility of linking the State's schools to a central computer, as has occurred throughout Tasmania. But 40 Perth schools are linked to one.

John McIlwraith is a Perth-based reporter for The Australian Financial Review.

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HIDDEN IN THIS PICTURE IS A DESKTOP COMPUTER.

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Why Tasmania Leads Australia

The US education market is saturated with software rubbish, says a visiting expert. But in Tasmania teachers and programmers have combined in a unique approach that produces programs teachers actually want to use. It's a breakthrough.

There's a lot wrong with computer-aided-education (CAE) in most of Australia although, ironically, the tiny island State of Tasmania is a world leader in the field.

Parents and Citizens Groups (P&C) have boobooed, most software is rubbish, teachers are running around in circles and computers rarely get out of the maths department.

But one Sydney-based, US-born, educator, Karen Fisher, says we are not much worse off than schools in the US. Karen has recently returned from America where she assessed the state of the art.

There is still no cohesive overall plan for the effective use of computers in US schools, Karen told Neil Munro in an exclusive interview. It is still a 'hit and miss' situation which varies from school to school. Some Australian schools have moved ahead of what is happening in American schools, but the operative word is "some".

Karen believes that the "computer mystique" still inhibits activity, even among professionals. "Teachers are no different from the general public; they are still intimidated by these machines and wary of them," she says. "It will take some time to teach them that computers are not mechanical monsters."

Karen speaks with some authority on the subject. After settling into the school system in Australia 8 years ago and achieving her masters degree in remedial resource teaching, she saw great potential in computer applications in general as well as remedial teaching.

Karen Fisher

Later she left the education system and joined DataFlow, a small company originally set up to distribute the locally-created *Direct Helper* – a computer-based system designed to help dyslexics and others with reading problems, increase their word-decoding skills.

"There is a lot of confusion on the part of administrators, teachers and parents about the place of computers in education", she says. "Teachers have some ideas about how they should be used and the direction they should take, but it's not happening".

"Parents and citizens groups control each school's computer dollars," Karen says. "They allocate so much money for hardware and little, if any, for software. It seems incredible that they can dictate how the money is to be divided up when they don't have the expertise to make these kinds of decisions. They might tell a school to spend $1,500 on a computer and leave only $200 for software – it often happens. The P & Cs don't know how much good quality software actually costs."

Karen knows that, out of desperation, some teachers are making pirate copies of software programs for use in schools.

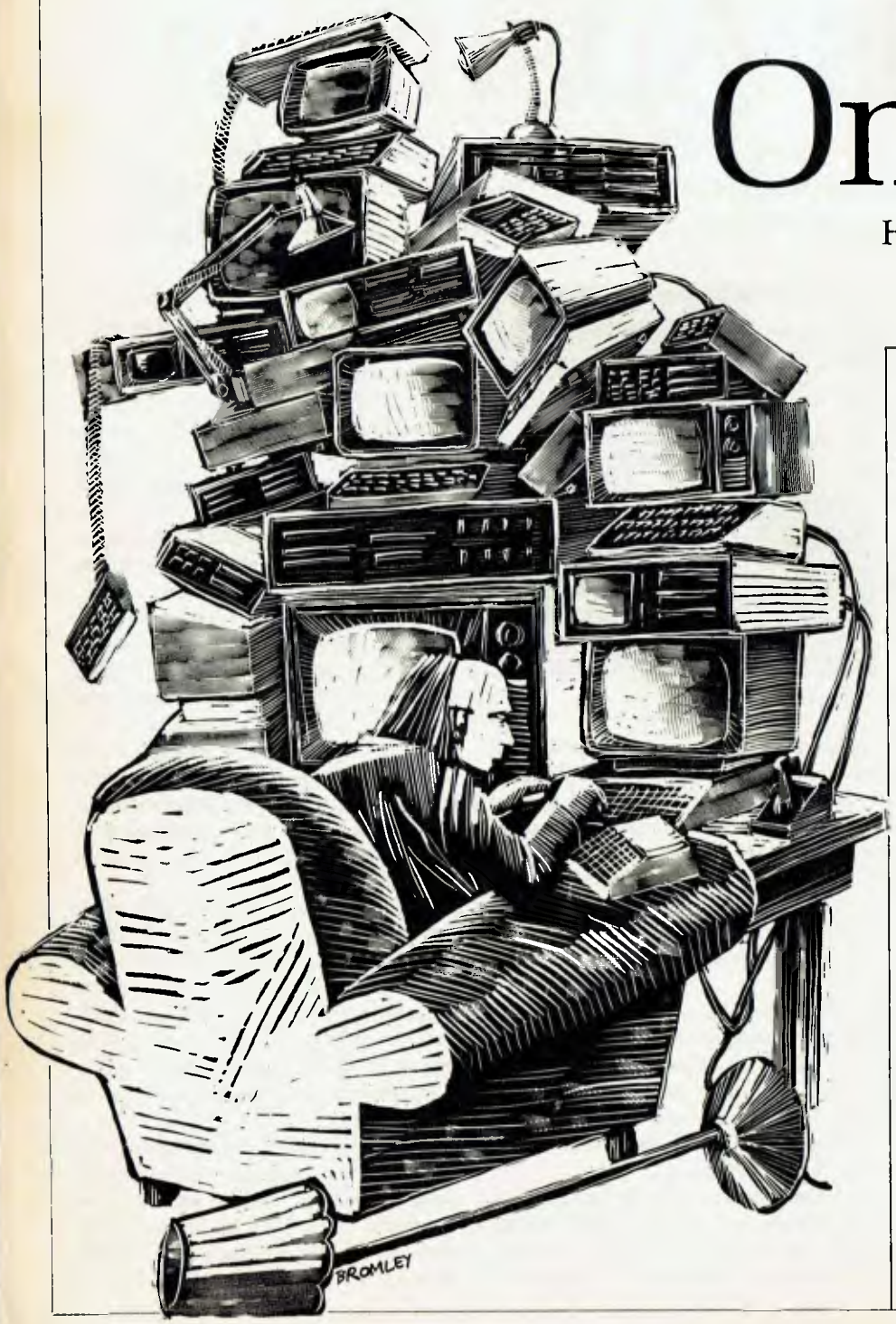
"The US market is saturated with software rubbish – 70% of the education software is junk, and expensive junk at that. Newsweek magazine commented that software in the US was 10 years behind hardware development, and that's true. Most of the so-called educational software is just 'drill and practice' material which is easy for a programmer to write but has very limited value in classrooms."

"What they are doing in Tasmania is the right thing," says Karen. "Teachers have learnt about computers first – they have been to in-service courses to teach them how to teach kids computer skills. Groups of teachers then sat down with groups of programmers to devise tailor-made programs for a particular brand of computer.

"What the programmers have come up with are programs the teachers actually want to use. It's an excellent approach – the kids in Tasmania are probably better off than kids in US schools."

The Law Finally Goes On-line

How Computer Power is going to make legal research easy



After a decade of debate and discussion, interlaced with meetings and numerous working parties and committees, Australia's first computerized legal information retrieval system begins trial operations this month.

The system, which comes fully on-line early next year, is expected to attract a diverse range of users including law firms, single practitioners, accountants, government departments, judges, local councils, corporate executives, company secretaries and trade unions – in fact, anyone who uses the law.

An extensive database is being compiled with some 50 million characters of information being added every month. This database will eventually comprise State legislation and case law and a range of secondary materials including company details from the Corporate Affairs Commission, land titles information and court information (court list and court diaries).

Three levels of files will be available – news, current and permanent. The permanent file will contain nothing other than permanent materials that will stay on the database. The other files will be updated and revised regularly. Electronic mail and a bulletin board service will also be offered.

By the time the pilot system begins

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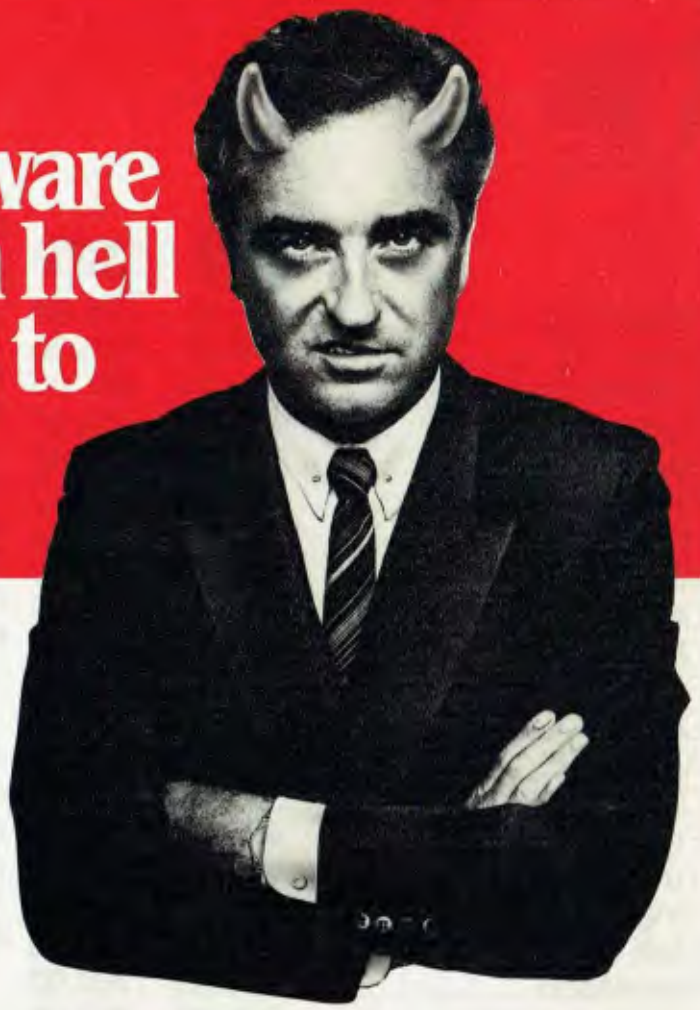

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Homeword	89.00	99.65
Zardaxx	256.00	324.00
PFS File Graph Report	146.00	175.00
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operation, only about 15 years of the principal State case reports will have been loaded, but more will continue to be added so that by the time the system goes public early next year it is expected that official reports, legislation, Acts and regulations going back 25 or 30 years will be languishing in the electronic files of a computer based at a complex in Surry Hills, in Sydney.

The most important Acts are being loaded into the computer first and as far as case law is concerned the 2 principal reporting series – the Victorian Law Reports and the NSW Law Reports – are now being keyed-in, starting from the most recent and working backwards.

If that sounds like an expensive undertaking, then that's because it is. The project is expected to cost in the region of $6 to $8 million in the first few years.

The Federal and State Governments have become involved because they hold the copyright on much of the information to be used on the system. But as with many projects the Government gets involved with, the legal information retrieval system spent a long time in what you might call gestation mode.

The idea to set up such a system was first floated in 1973 by the then Federal Attorney-General, Lionel Murphy. After numerous discussions with the various State Attorneys-General agreement was reached that what was needed was a single-gauge system. The last thing they wanted was a whole set of different systems operating in different States which couldn't talk to each other.

According to Anthony Gould, general manager of CLIRS Australia, the company charged with running the legal information retrieval system, the various groups studying the proposals recognized that there were not a great many lawyers in Australia and that if the system was going to succeed it would have to reach as many people as possible. It would have to offer a wide range of information services – it should not be designed just for large law firms, but for the average practitioner.

"That meant whoever set up the system would have to spend a great deal of money developing facilities on that system that wouldn't necessarily be justifiable in the short term," Gould said.

"They realized that if they were going to find an operator to spend that kind of money to produce the kind of system they wanted, they would have to consider some form of incentive to encourage that organization to make that type of investment."

WHOEVER SET up the system would have to spend a great deal of money developing facilities...

That incentive was to give an exclusive right to use legislation and case law for a given period – a monopoly, if you will.

In 1982, Victoria and NSW called for tenders to provide such a computerized information retrieval system and after a year of evaluation, the Melbourne company, Computer Power, had its proposal accepted by both States. The agreement with the States was for 4 years with another 4-year option.

"We were given a licence to provide electronically, Crown copyright materials such as the legislation and the reported cases. The licence provides an exclusive right to publish electronically those materials," Gould said.

Last July, the Federal Government agreed to provide public access to Commonwealth legislation and related materials and to decisions of the High Court, Federal Court and Administrative Appeals Tribunal – which are stored in the Attorney-General's computer system. The agreement with the Federal Government is for 3 years.

To finance the project, Computer Power had to go looking for a partner with a bit of spare cash. It came up with none other than Rupert Murdoch's News Limited which paid $12 million for a one-third share in Computer Power.

Computer Power then hired Anthony Gould, a former general manager of the International Thomson Organization and later managing director of the European Law Centre, to head the operation. In January, Computer Power set up a subsidiary, called CLIRS Australia, which will establish and operate the service.

Gould, who has had extensive experience in this area of technology, established EUROLEX, the principal European computerized legal information retrieval system in the late 1970s. He has assembled a team of experienced personnel, many of whom have also had first-hand experience with similar types of database systems.

The pilot scheme will eventually involve about 60 users ranging from large and small law firms to individual barristers and judges from all around Australia.

"From the word go, from the pilot stage, the systems will be accessible from anywhere in Australia at the communications cost of a local telephone call. We are directing all enquiries into a network and we in effect are bearing the cost of that network. So if you're a solicitor in Darwin you make a local telephone call and get into the system," Gould said.

CLIRS expected that 2 and possibly 3 other States would be involved in the scheme by the time the pilot begins, but eventually hopes that all other States will join the system.

Gould is adamant that other companies will be allowed to set up database on the CLIRS system: "CLIRS is a vehicle; we are not a publisher. We are providing a facility to the legal profession and many other publishers have been invited to put up on the system their materials and quite a number of them have already responded to that. Not all of them have, but we are confident that the majority will."

Users will also be able to access similar overseas legal databases. "Effectively, what we want to do is to provide the Australian users with the facility to select from a menu of databases, not only Australian ones, but overseas databases as well," Gould said.

As with most projects of this type, the charges for using the service will be crucial in determining its future. CLIRS says the charges will be structured so as not to exclude small practitioners and users.

"We are working with the basic charge level of $100 an hour. However, that fee is not calculated entirely on con-

Continued page 34

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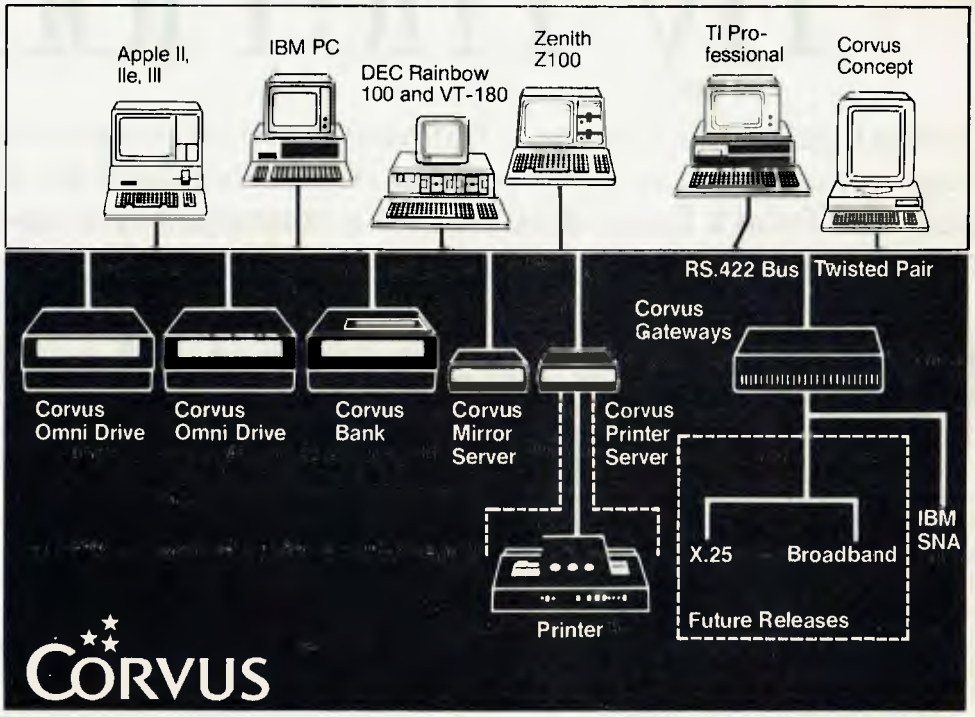

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By the time you come to think about paying for your choices your capacity for inquiry may be exhausted. Yet you are probably aware that, as with most business purchases, there must be many options available for you to take full advantage of tax and other savings.

At this stage you need a consultant. For the sort of advice you're looking for you could try a finance broker, preferably one who is a member of the Australian Lease Brokers Association.

We talked to the principal of Darius Financial Services, based in Bondi Junction, Sydney. Harley Cremer put together 2 options for us (see tables). They relate to a personal computer and software with costs amounting to a hypothetical $7,100.

Cremer claims that many businessmen find the range of available options confusing. Stumped, they approach their bank or finance company and end up with a standard 5-year, 10% residual lease.

They might do a lot better.

"We have trained consultants who can design a complete computer finance package to suit the needs of individual clients", Cremer said.

"When we design a package for a client we take into consideration his cash flow requirements and permissible taxation benefits.

"Some clients will not need the 18% investment allowance, and therefore we can negotiate interest discounts of up to 7% a year on their behalf. We can design structured repayment leases with low repayments in the initial years and higher repayments in later years.

Continued page 35

From page 32

nect time, it's also calculated on the complexity of the computing resources that are used," Gould explained.

In other words, charges will be based on a taxi-meter-like model where it speeds up when performing on-line searching and slows down while reviewing the display information on the screen.

The base charge will also vary in relation to the level of usage, whereby users who commit themselves to a higher level of monthly usage will receive a discount – up to the order of about 20%.

CLIRS will also provide training. Subscribers will be given free training sessions based on the number of units of usage they commit themselves to. It is expected that 2 half-day training sessions spaced over several weeks will give the user a more than adequate knowledge of the system.

The software used on the legal databases is called *STATUS*. It was first developed more than 10 years ago by scientists at the British Atomic Energy Research Establishment.

CLIRS says that one advantage of *STATUS* is that it doesn't require the use of dedicated hardware and that with the addition of a few bits and pieces, most popular makes of computer can be used.

Gould was quick to defend *STATUS* against critics who have said that the product is outdated. "There's a common misunderstanding about what that product is," he said, "it's a dynamic product".

Gould says it has been heavily modified, improved and enhanced since it was first released in the early 1970s. "It's considered both by us and a large number of organizations who have in the last few years done comparative studies to be by far the most efficient full text management software for large databases."

For users who request it, CLIRS will provide customized terminals. The company is now looking at 3 types of terminals as possible candidates for customization. These range from desktop varieties to more robust types available for public access in places such as libraries.

One thing seems for certain. After the introduction of the system, legal research – often laborious, always time consuming – promises never to be quite the same again.

Steven Hutcheon edits the computer pages of The Sydney Morning Herald.

HIRE PURCHASE can be a viable alternative to leasing when companies have tax problems.

From page 34

"This type of finance package is especially important in businesses where increased productivity and profit through computerization is not immediately apparent."

Cremer claimed that corporate hire purchase was an attractive proposition for computer purchasers, as it allowed accelerated depreciation write-offs. It was now possible to write off the purchase of a computer over a period of 3 years.

Corporate hire purchase gave you the added advantages of:

(1) Guaranteed ownership of the goods;
(2) Trade-in equity on plant (this can be used to minimize rentals when updating equipment); and
(3) The option of no residual value to find at the end, as in leasing.

The value of the items purchased can be shown on the balance sheet as fixed assets, which helps when the company plans to borrow funds and there is the added advantage of no stamp duty.

"Commercial hire purchase can be a viable alternative to leasing when companies have tax problems because of high profitability," Cremer added.

"Probably the most important reason for a computer purchaser to consult a finance broker is that the broker can negotiate the best possible rates of interest for his client by virtue of his buying power with lenders such as merchant bankers, trading banks and finance companies.

"The considerable volume of business the broker transacts allows him to negotiate the most favourable terms for his client."

Harley Cremer

Footnote: Cremer says his company offers a 48-hour answer system so business opportunities are not lost waiting for loan approvals.

The following tables illustrate the range of options available.

OPTION A – LEASE

Cost: Hardware $7,100, **Software** $4,895. **Term** (months): 48, **Start month** (1-12) 1, **Start year** 1985. **Monthly payments** $322.64. **Residual value:** $1,200.

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	TOTAL
Deductible expenses	6,031	3,872	3,872	3,872			17,646
Actual cash outlay	3,872	3,872	3,872	3,872			16,687
Residual year 5					1,200		
Tax savings	2,774	1,781	1,781	1,781			8,117
Nett costs	1,098	2,091	2,091	2,091	1,200		8,570

OPTION B – CORPORATE HIRE PURCHASE

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Nett costs	-701	2,393	2,647	3,991			8,330

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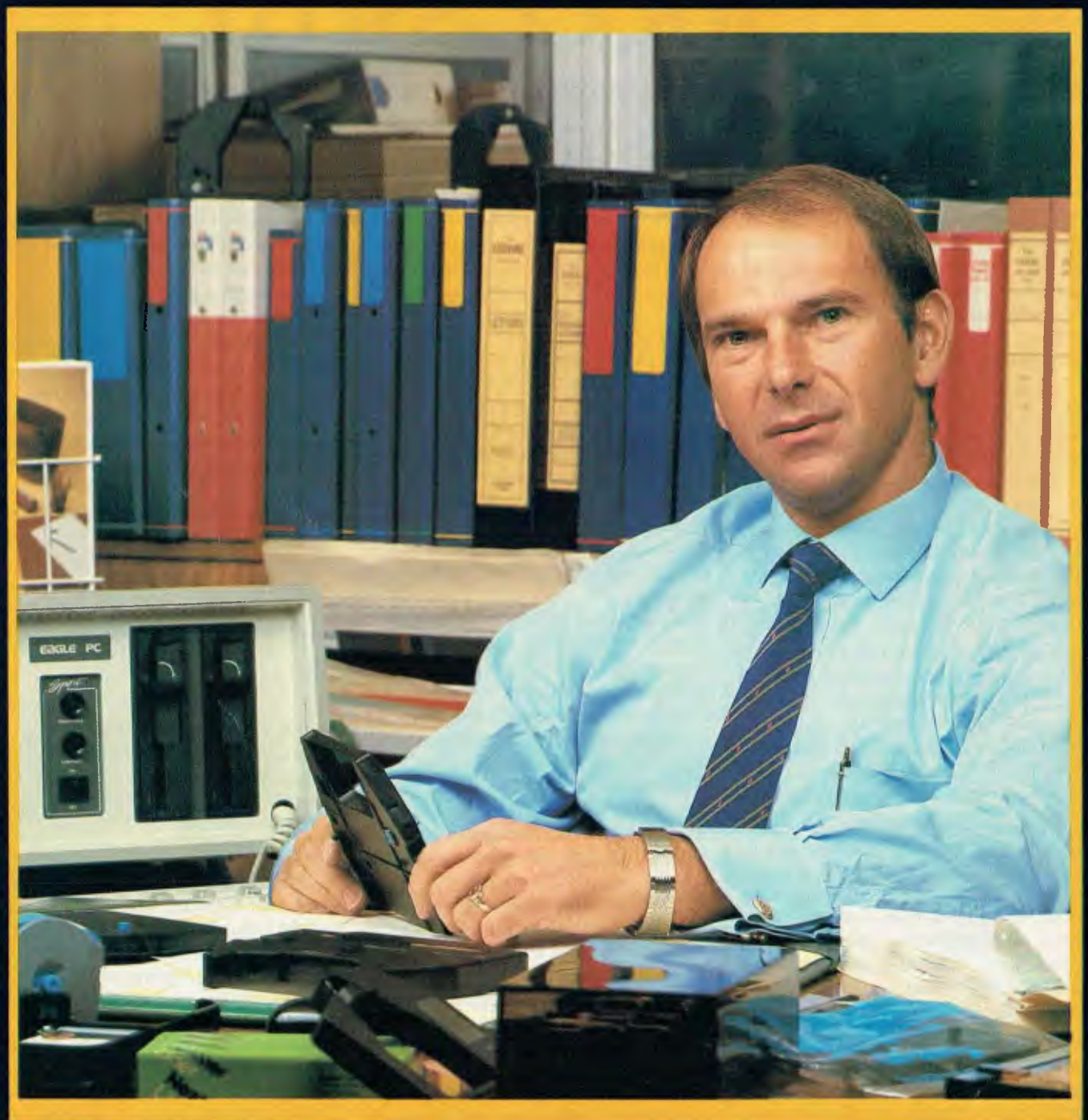

Meet Andrew Kaldor, a chief executive officer who runs a $12 million company with a PC.

Colour Me Successful

Columbia Products makes more than 40 million coloured and lead pencils a year. But things were anything but rosy at Columbia until Andrew Kaldor and his PCs arrived.

How many chief executives of $10-million-plus companies in Australia are actually using the personal computer on their desks to direct operations? Very few, we suspect.

Most top executives can't get far enough away from the dreaded PCs.

However, off busy Mowbray Road in Lane Cove, Sydney, I found Andrew Kaldor running his $12-million-a-year manufacturing and wholesaling operation with an Eagle transportable PC on his desk.

All Kaldor's lieutenants, and Kaldor himself, also use directly a nearby IBM-PC for a wide range of key management tasks. The Kaldor operation is quite a story, possibly unique in Australia.

Columbia Products makes more than 40 million pencils a year, plus several million computer ribbons. When it changed hands quietly in 1980, offloaded by a large multinational onto a handful of young turks headed by Kaldor, things were anything but rosy.

With a history of over 60 years, Columbia (it was better known then as G. H. Horton) was overstaffed and losing more than $500,000 a year. More importantly, it suffered from outdated planning, manufacturing and marketing procedures. It owned significant but badly-exploited real estate.

Its Columbia trade names were known in the stationery industry but its management and marketing strategies were not the subject of admiring articles in the business pages of national dailies.

The young turks (Kaldor, a McKinsey graduate, is today only 37), borrowed significantly from Bill Acceptance Corporation to consummate the deal. Kaldor went in with 3 partners, 2 now working as executives at Columbia.

In 1980 G. H. Horton wrote sales of $5.6 million, but it had lost more than $1.2 million in 2 accumulated years and employed 250 people. This year a renamed Columbia Products will write $12 million by September. It will be well into the black and the number of employees is under 200.

Two-thirds of its sales are from printer ribbons; one-third from pencils and stationery.

Unequalled

Says Peter Johnstone, regional general manager of Bill Acceptance Corporation: "Columbia is extraordinarily good – their information and the financial analysis they give us every quarter is unequalled."

Johnstone claims that none of the non-public companies Bill Acceptance lends to could rival the quality or detail received off the Kaldor personal computer operation at Columbia. Forecasting is very detailed – and the quality of the information has a major influence on Bill Acceptance being a most satisfied and unworried lender.

Kaldor is also an investor, as is Columbia's chairman Robbie Eisner, in a new company called Hi-Tek, specializing in hi-tech plastics and soon to be launched via stockbrokers, Potter Partners. Again, Kaldor has used his trusty PC for much of the forecasting work behind this company's cash flow and marketing projections.

He is keen on 4 packages, *Lotus 1-2-3*, *PC Draw*, *Easywriter* and *PFS file*. In Australia, Lotus is sold and supported by Jody Rich's Imagineering.

Says Potter's Ross Milne-Pott, a senior consultant in its Melbourne corporate division: "Andrew Kaldor's work in coming up with alternative projections for Hi-Tek was particularly formidable and useful. I know of no other chief executive officer able to provide those sort of figures personally."

Says Melbourne-based businessman Eisner: "He is very, very analytical, young and most energetic. Kaldor's work off his PC is most helpful in sussing out alternative and trends."

A keen jogger, Kaldor's background includes a managing directorship at Advance Industries (where he learnt the stationery business and 5 years in the US and UK with McKinsey and Company, consultants).

Refining

With Eisner and Columbia's now marketing director, Bruce Haynes, he bought Columbia from St Regis-ACI in 1980. Kaldor slipped quietly into the spacious but uninspiring offices at Lane Cove and, in his own words, "started refining operations".

The company's mainframe computer was a Honeywell. Production manager Les Johnston was first off the mark with a Tandy TRS80 personal computer.

Columbia Products' Andrew Kaldor and Peter Chalmers with the company's IBM-PC.

Kaldor's main needs were accurate budgeting, labor control and formulae-change figures for more than 600 different inks used in production. Over 1,000 finished products involved more than 2,000 raw materials.

Columbia's $100,000-plus Honeywell Level 6/49 mainframe was good at basic number-crunching for areas such as sales collection, but extra software was needed for constant manipulation of statistics and projections. Executives also needed hands-on control.

Software consultants worked out that extra programs for the Honeywell to handle the extra manipulations would be more expensive than the cost of buying an IBM-PC with 320K RAM storage and *Lotus 1-2-3* software (about $15,000 all up).

Kaldor decided to buy an IBM-PC and get involved himself. The purchase was made from Harry Harper's Zofarry Enterprises, a Sydney operation.

When Lotus didn't have graphics capabilities, he upgraded.

"Learning a PC does require concentration," says Kaldor. "I took the time out to learn properly. I considered it essential and it has paid off."

Applications included producing a 5-year plan with a complete financial model for the company, up-to-date margins over costs figures and figures giving an accurate picture for monthly board meetings. Other software, *PCDraw*, saw organizational charts emerge, plus input of Australian Bureau of Statistics figures for a variety of fields. Kaldor makes most use of *Lotus*, and uses *Easywriter* for word processing and *PFS file* for flow and organizational charts.

Kaldor spends at least an hour a day on the PC, but it is now also used frequently by other senior executives such as financial controller Peter Chalmers, and Greg Williams.

So a second personal computer, the transportable Eagle, was acquired. Kaldor keeps it strapped to his own desk and the IBM-PC stays in an adjacent office. "I bought an Eagle simply because IBM has not released its PC Portable here," explains Kaldor.

The Kaldor Eagle does do a little flying. Kaldor frequently takes it home to his Darling Point house where he often works on tasks into the night or at weekends. Alternatively the Kaldor kids, Nicola, 11, and Evan, 9, plus wife Renata, go Eagle as well.

The Eagle came via Remy Morello at Asia Pacific Technology Marketing.

"A PC gives enhanced productivity," says Kaldor. "There's no doubt it has a big future in top management, You can do sums that much faster and play many more options in a manufacturing or marketing situation.

"Using one depends on an executive's style. There are heaps of companies doing very well without chief executives using one.

"I am a detail man; I manage by focusing on different areas to analyze how a company develops. You take over an old business, like we did, and you have simply got to set up alternative ways of doing things. The old ones do not fit a new world."

Kaldor enthuzes over sales opportunities and concentrates on getting the right products out to meet certain situations. He sells most of his 40 million pencils during a 3-month period each year.

Columbia is a relatively small-scale manufacturer, but it has a lot of products and a large variety of raw materials, most of which are imported (with Columbia having no control over the costs).

The Kaldor-Eagle team is sensitive to stock management and labor cost control to the nth degree. Seasonality of pencil sales and a relatively plateaued market restrict innovations to cost and stock control.

Computer ribbon production, where Columbia private labels to leaders such as Epson, offers more growth but Columbia has a lower market share in a better overall growth market. It is highly regarded here, and the only maker of film ribbon in Australia.

German-owned Staedler is the big competition in pencils and there are several other majors in ribbons, but Kaldor, Eisner, Haynes and Johnson own the company and things look good overall.

"I am still refining our operations, 4 years on. We are trying to cope with our growth potential and there is always room for improvement," says Kaldor, returning to *Lotus 1-2-3* and his Eagle.

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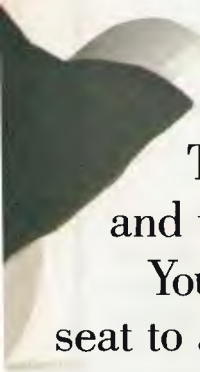

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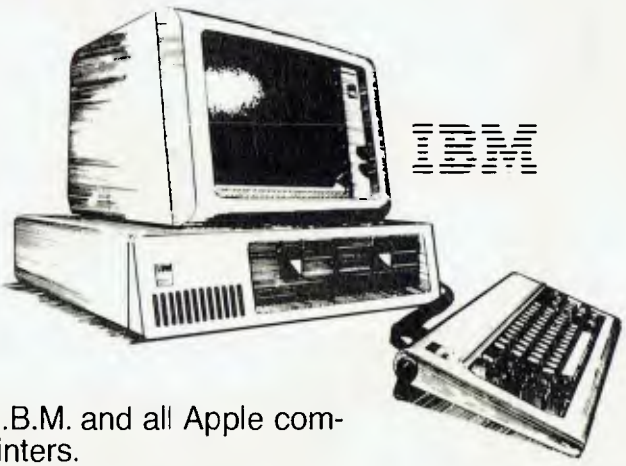

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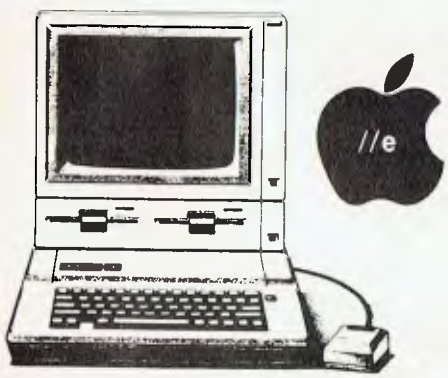

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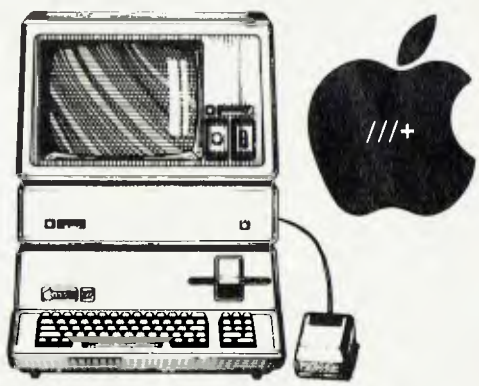

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What's in a Name

It's often difficult to tell how good or bad a name for a software product is. What's easy to see are the problems and aggravations involved in finding an acceptable one.

I'm sensitive to names. I agonize with my wife over the naming of our children, and I agonize over the names we at SSI give our computer products. Why are computer names so difficult? Because finding a name is more than just coming up with a nice-sounding word that suggests wonderful advertising campaigns.

When SSI was named, no one checked with an attorney to see if SSI or Satellite Software International was already in use. By the time we named our word processor *WordPerfect*, we were a little smarter and called an attorney.

For a fee, an attorney will search through all registered trademarks, pending trademark applications, and company names filed with state governments for names that might be the same as or similar to the one in question. But even if nothing turns up in the search (and that rarely happens), the attorney makes no guarantee—a company may be using the name without having registered it.

The *WordPerfect* search went well, so we started using the name and filed a trademark application. That was almost 2 years ago; a company in Kansas is still contesting the registration. And though we like the name, it is sometimes confused with *Perfect Writer* and *Letter Perfect*.

The difficulties with *WordPerfect* were slight compared with the naming of our database software. Since *WordPerfect*'s initials were WP, short for word processing, we thought that our database's initials should be DP, short for data processing. After a lengthy deliberation we selected

Pete Peterson

DataPath.

We started using the name, and our lawyer sent off the application. To my surprise, a company called ADP was already using *DataPath*. Their attorney wrote demanding that we stop using their name.

Next we tried *DataProfile*, but there was already a *Profile* and a *DataPro*. We could have argued in court that our mark was not confusing, but we decided to find another name.

After giving up on the initials DP, we tried *DataNow*. Of all the companies and products in the United States, only one had registered the name. It was a small company just 25 miles from our office. By *Now*, I was getting desperate. The product was getting close to release, and I needed a logo, brochures, packaging, and ads immediately.

I gave our lawyer five names at once (I no longer cared about the cost). Unfortunately, *DataFocus* might have been confused with another new database called *PC/Focus; Pathworks* was too close to *PathFinder* and *PathWay* and is used as a company name by a group in California; *DataTrust* was already a company name and a product name; *FirstData* had been used in various similar forms and might be confused with products from First Software; and *DataMagic*, the last choice, had been used 3 or 4 times already.

The working title around the office is now *DataWhatever*. If our two last-ditch choices, *DataPerfect* and *DataPlace*, are not available, then my final hope is the very catchy *SSI Data*. We might also lose SSI someday, but I'm trying not to lose any sleep over that.

There is one consoling thought. We'll never lose the name Satellite Software International. ■

Pete Peterson is executive vice president of SSI and codesigner of the database in question, SSI Data.

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Starting On The Right Foot

Lawyers who are ready to computerize their offices need to look before they leap. Before buying a microcomputer, the first matter to decide is the kind of work it should do for you.

One of the obstacles keeping lawyers from joining the microcomputer age is the limited amount of information available to help them decide whether they need micros at all. Most lawyers therefore start the educational process at the wrong level.

A common wrong-level remark heard is, "I think I'll take a course in data processing." Or worse, "I need to know more about computers. I think I'll take a course in programming." Or, "I think I'll go to the local computer store and see what they have." None of these approaches addresses the fundamental question: "How can the computer help me in my law office?" Here are some of the key points lawyers need to consider.

Remember this rule: Anything a computer can do, you can do by hand. The computer just does it faster and, in most cases, more efficiently.

Every law firm is different, and each has different uses for a computer. But all law office applications fall within these general categories: word processing, information management, number crunching, electronic spreadsheets, communications, and miscellaneous.

The Almighty Word

Words are a lawyer's primary tools, and word processing is the most useful application for many law firms. It requires

a word processing software package, of which there are more than 100 ranging in price from less than $100 to more than $500. Since an entry-level computer, printer, and word processing software package can be purchased for between $3,000 and $5,000, this is an inexpensive introduction to computers for a lawyer. Many small firms justify the purchase of a computer by using it first as a word processor. Later they learn how powerful the computer is, and its other applications become a dividend. If your office already has a dedicated word processor, then the computer can be a backup or can be used for special word processing applications.

With word processing in place, the next step might be to set up an information management system. The object of information management is to keyboard (type) the basic information just once, then use a database management software package to sort and select specific information.

You can also sort and select by culling out the names of all client matters handled by each lawyer, or sort and select by lawyer and court to determine the cases in each court by each lawyer. This same application can apply to a calendar control system and time and billing system. The sort and select process is limited only by your needs.

Playing The Numbers

In law offices with many procedures involving entries that require addition, subtraction, multiplication, and division, number crunching is an invaluable application. It lends itself particularly well to bookkeeping and payroll.

A general ledger (bookkeeping) program allows you to assign accounting code numbers to expenses, income, and other bookkeeping entries. This will normally be done with the assistance of your accountant. You then keyboard the date, amount, payee, and accounting code number of each check, as well as the date, amount, and designation of each deposit. The computer automatically produces a printed list of all posted items, a ledger account according to account number of each posted item, a trial balance, a statement of income and expense with monthly

totals and year-to-date totals together with percentages, and a balance sheet for the month with year-to-date totals and percentages. In the past, I could never afford the time to prepare monthly statements. Now my monthly statements are prepared by the computer in less than an hour, and I can immediately have a year-end statement as soon as the bank account is received for the twelfth month.

Other examples of number crunching involve income tax projection or estate tax projection programs. These packages allow you to perform calculations that might otherwise be impossible because of the time they take. I use an estate tax program to make projections for my clients. If I had to perform the calculations by hand, it would take 5 to 6 hours. The computer makes the calculations and prints a report in 15 minutes.

Better yet, there are income-tax programs available that perform "what if" projections. If you have entered all the income and deductions for a client, the computer instantly calculates income averaging, alternate minimum tax, and net tax liability. Once these numbers have been entered into the computer, you can change an item of income or expense, and the computer will calculate instantly the changed amount of alternative minimum tax and net tax liability.

Among the most popular types of software available for personal computers is the electronic spreadsheet. Visualize a sheet of paper divided into vertical columns and horizontal rows. Most spreadsheet packages have more rows and columns than you will ever need (one offers 63 columns and 254 rows). These spreadsheets allow you to enter information and mathematic formulas; when you change the numbers within the columns, each mathematic formula will electronically produce new calculations based on the change.

Electronic spreadsheets are especially useful when you are trying to make financial projections for a client and want to make some "what if" calculations on the effect of various changes on the financial projections.

A Wealth of Information

Most law firms have extensive libraries, but a computer can put lawyers in touch with vast wells of information. There are now hundreds of on-line databases (not to be confused with database management systems) available to any lawyer who has a computer and a modem. (A modem allows your computer to communicate with another computer over regular telephone lines.) Databases probably already familiar to lawyers are Westlaw and Lexis. In addition, lawyers can access many other databases on numerous subjects. Most database services charge based on on-line time. Some have minimum charges; some have monthly service charges.

The computer and modem can also transmit documents you produce from one office to another. If you have a branch office and both the branch and the main office have a computer and modem, you can prepare a document in one office on your word processing equipment and send it electronically over the telephone lines to the other office. Indeed, you can send a document to anyone who has a computer and a modem. It is quite likely that lawyers will electronically transmit pleadings and briefs to court at some point in the future.

Numerous companies operate electronic bulletin boards that allow lawyers, through their computers and modems, to post notices for other lawyers around the country to read. Interested readers can then contact the posting lawyer, either via computer and modem or by telephone.

There are other applications useful in a law office that don't conveniently fit into any of the previous categories. Extremely helpful is software that automatically produces income tax returns. Other software allows you to retrieve documents and information using a key word search technique similar to Westlaw and Lexis, reconcile your phone bill, or fill out immigration and naturalization forms.

Once you know what computers can do for lawyers in the abstract, it's up to you to analyze your own office and determine whether a computer will really help you. You might start by addressing this question: Will it be cost effective?

In my own practice, I resisted the computer because the initial cost was more than I was willing to pay. It was not until I reduced it to a financed monthly payment that I realized I could not afford to be without it. Here's a financial analysis: You can acquire an entry level system for between $3,000 and $5,000; $5,000 financed at 14 percent over 36 months results in a monthly payment of $170.89. Taking this calculation one step further, if the computer is properly used in your office, it could be busy 40 hours a week, which is about 172 hours per month. If you divide the monthly payment by 172, the computer will cost you 99 cents per hour.

To be hard-nosed about your analysis ask yourself, "Am I willing to pay 99 cents an hour so that my staff will be able to produce more efficiently?

Of course, there are factors that this analysis leaves out. For example, a computer may allow you to offer a new service to your clients, and this may result in additional fees. Possible new services are estate tax projections, income tax projections, preparation of income tax returns, and financial projections.

If you have decided that you might be able to use a computer in your law practice, don't dash right out and buy one. You need to know three additional things.

- How much do I need to know about computers and where can I find that information?
- What equipment do I need to buy?
- Who will help me get it up and running and keep it operating smoothly?

I will explore these topics in greater depth in subsequent columns. ■

Robert P. Wilkins is a lawyer and the editor of The Lawyer's PC, *a newsletter for lawyers using the IBM PC.*

One stands head and shoulders above the rest.

Amongst the growing number of IBM* compatible personal computers, there are a lot of major differences.

All offer similar power, and are capable of performing almost identical functions. The best one, however, must not only be industry standard software and hardware compatible, but also offer a total package. That alone eliminates about 85% of the roses in the garden.

The fact that the best one will also offer a free 3-month warranty plus, for a token amount for registered users, an additional 9-month warranty, and the maintenance back-up of Sigma Data that enables on - site care is quite unique.

Most of the remaining roses are looking very tired now.

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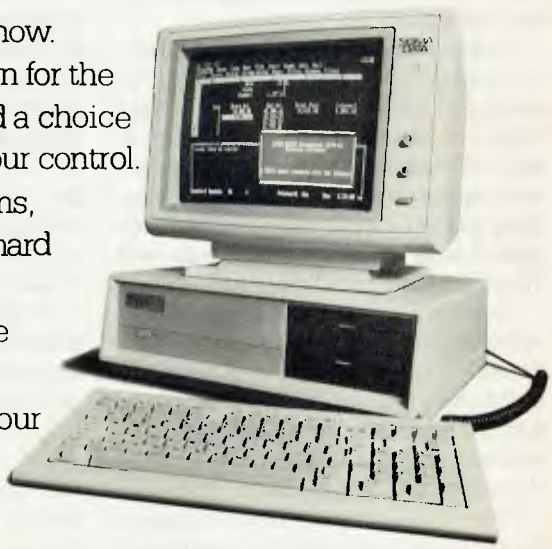

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Stewart Roache Watson SDC041

US DP Managers Win The PC Fight

Who should control the hundreds of personal computers suddenly popping up throughout corporate Australia? Can data processing managers regain their former authority? This special report from America by John Pallatto and Peggy Straube outlines the state of play in the US.

The days of the microcomputer underground in American corporations are nearly over.

Data processing and information managers have asserted their authority (or were forced) to take control of micro computer resources because of the sheer numbers of users and the growing demand for micro computer support.

Computer market watchers say 1983 was the pivotal year in the brief history of corporate micro computing when management information systems (MIS) discovered that personal computers and their users had become too powerful to keep out of the information-processing mainstream.

Before that year, many data-processing managers, working in the cloistered, air-conditioned atmosphere of the locked computer rooms they manage, believed they could ignore the micro computer mavericks who were smuggling in their own Apples and TRS-80s loaded with *VisiCalc* spreadsheets and *WordStar* word-processing software.

Some of the MIS people were themselves micro computer disciples who preached the gospel of desktop computing as a way for business people to perform ther own computer programs without bugging the data-processing department.

Once converted, line managers started to order substantial numbers of micro computers for their departments and corporate management would sometimes set policy for micro computers with little or no comment from the data-processing department.

When the data-processing managers finally paid attention, they were often confronted with a polyglot of incompatible hardware and software.

Often the confrontation came when micro computer users appeared at the doorstep of the data-processing department looking for help with maintenance or training or seeking a way to link their micro computers with data files locked away in the mainframes.

Worse yet was the plight of those plucky micro pioneers who had to swallow their pride and, hat in hand, beg data processing to rescue them when their pet PC database program swallowed the names and addresses of every customer in the Western Hemisphere, or when the micro-based financial modelling package they had bought with such confidence turned out to be a better frisbee than a decision-support tool.

If they were lucky, there might be somebody in the data-processing department who knew how to fix the problem and, if so, the lost soul's return to the DP persuasion was greeted with grins of triumph. Occasionally the user was told to lump it if the resources weren't available or if the unhappy pioneer chose hardware and software that bucked a DP standard.

The advent of the IBM-PC was one of the developments that helped data-processing managers bring the micro computer under their wings. Here was a product they could seize upon as a standard with a large pool of software that could work wherever an IBM-PC was installed.

They could order personal computers from the same people who were selling and maintaining their mini-computers and mainframes. And IBM could give them at least the vision of an integrated computer network of mainframes, minis and micros.

Data-processing managers "are regaining control of the underground routes that allowed individuals to buy Apples and a variety of systems without consulting data processing by bringing standardization to the micro computer world. They now have the power to specify computer brands, software, training and support efforts," said John Hemphill, vice president of Future Computing Inc.'s technology group in Texas.

According to Hemphill, data processing managers who failed to get involved early in the microcomputer movement are saying, "The reason I lost control in the first place was because I was too rigid. If I am going to retain some kind of control I will have to be a little flexible." For some, this meant a personal admission that micro computers were

A $40 Ring King bookcase, from Textrona, of Leichhardt, Sydney, allows users of IBM-PC manuals to organise stands and filing of software.

useful and a powerful business tool, he said.

But once this admission was made, it was not hard for the corporate world to accept the idea that data processing should have overall responsibility for how the organization will use micro computers.

Although the use of micro computers may have been in flux for the first 5 years they were in existence in the corporate world, "A company is an organization with a management and rules that eventually get enforced," Hemphill said, and even the most independent department head has to deal with that.

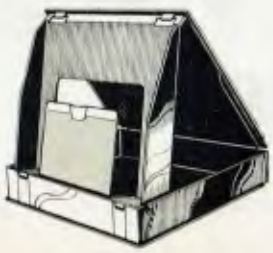
There is, however, some divergence on how standards and policies are implemented, Hemphill said. It varies from company to company and depends, he said, on the "corporate culture".

That data-processing people were slow to respond to changes wrought by the micro computer is not surprising, Hemphill said. Data-processing people spend years learning the highly controlled mainframe and mini computer technology.

"It's just human nature. You learn something, you are skilled at it, you are comfortable with it. It's hard to accept changes brought by the new technology," Hemphill said. "Technical people are some of the worst offenders. When confronted with new technology they say 'I don't want to change,' " Hemphill said.

A survey of 107 Fortune 2000 companies conducted by Future Computing in 1983 showed that 76% of the organizations interviewed had given the responsibility for managing micro computers to the data-processing department, including the authority to specify computer brands and models, evaluate software and develop micro computer software.

Of these, 90% were setting standards for hardware and the remaining 10% said they were preparing to set standards. When selecting software, 71% of the companies said data processing set the standard, 18% said they were in the process of declaring standards and 11% said software selection was left up to the users.



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What Does DOS Do?

Common to all computers but a facet understood clearly by too few users is the function performed by the Disk Operating System. This intelligent translator plays an integral role in getting full use of your machine's capability. Ian Gronovski reports.

To explain what a DOS is it is not enough to expand the acronym – Disk Operating System – a somewhat more involved discussion is necessary.

So we might as well start at the shallow end – pronunciation.

There is some controversy here; one school of thought would pronounce it Dee Oh Ess, the other to rhyme with (dental) floss. The latter is the norm in Australia, probably because it is easier on the tongue.

Having got that out of the way, we can hardly avoid moving into deeper water and explaining what an Operating System, and hence a Disk Operating System is. To do this brief digression on the logical design of a computer is useful.

The brain of a computer, that ubiquitous product of the last decade, is the microprocessor. If you are an Apple owner this chip is called the 6502; if an IBM owner, an 8086 manufactured by Intel, and if a MacIntosh owner a 68000, by Motorola.

None of these chips are "software compatible" – programs written for one won't work with another – hence a plethora of confusing terms and different operating systems.

As well as the microprocessor, your computer contains "memory". This is what programs and data are stored in when the program is running. When you run *VisiCalc*, both the program and spreadsheet you are editing are "in memory", where both the micro and you can look at it. In mathematical language we say the computer is a "Von-Neumann" Machine.

As well as this, computers have what is known as I/O devices. This is not a reference to a moon of Jupiter, but rather to "Input/Output" gadgets, the things that let the computer talk (output) and listen (input) to the outside world.

These include a keyboard, a monitor (TV screen), disk drives and maybe a modem so that the computer can communicate with other machines over the phone. Without these devices, a computer wouldn't be terribly useful.

So that's a computer and we want to use it. The only problem is that the computer understands only "machine language", the native tongue of the microprocessor, and this is a sequence of 0s and 1s known as "binary digits" or "bits". Not terribly user-friendly.

Also, I/O devices are even stranger. They too talk only in 0s and 1s, but they require precise timing – you might have to send 8 bits (1 "byte") and then wait exactly 32 microseconds, 32 millionths of a second, before sending the next 8 bits. I think even the best Space Invaders player would have trouble with that speed.

But this is exactly the area that computers excell at. All we have to do is write a program in machine language which allows you to enter commands in near-English (and compared with a string of 0s and 1s, even BASIC is near-English). Such a program is called a high level language, and BASIC is one of these.

This makes life easier for programmers, and even people; but still doesn't solve our problem of how to save programs and data on a disk drive, waiting 32 microseconds between each byte.

Again, no problem we just write another program that handles all that drudgery of talking to I/O devices, that allows us to type in SAVE MAILING-LIST and, like magic, does just that. Such a program is called an Operating System, and there are compelling reasons for making it a distinct program from a "high level language". Because the disk drive is the most complicated of the input/output devices, an operating system is also called a disk operating system.

OK; so a DOS handles I/O, in particular the disk. What operations can we perform?

Well, as far as the disk part of a DOS is concerned, the key entity is the "file". A file contains information you are interested in, be it a program such as *Lotus*, or data such as a spreadsheet, a word processed letter, or even a picture. A file is the information stored on a disk.

Thus we can LOAD files from the disk into memory, ie, from the floppy disk or the hard disc into the computer; or we can SAVE files, which is the inverse of this operation – storing files that are in memory on to the disk. Lastly, we can CATALOG a disk, list all the files on it. All other operations are basically

Continued page 55

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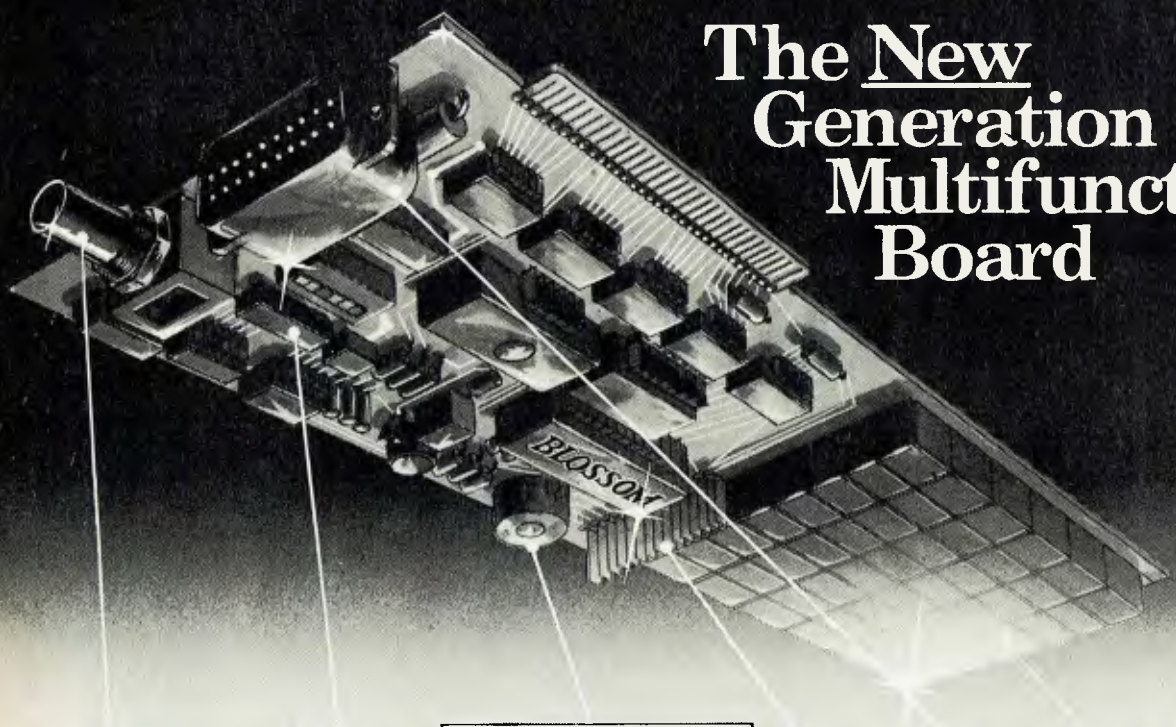

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Waking Up To Computer Education

With 135 IBM PCs installed in its middle schools, North Carolina's Wake County school system has made a strong commitment to computer literacy for all its students.

At schools around the country, officials are devising computer training strategies more complicated than a *PacMan* game—far more. Administrators and teachers are coming face to face with how much they have to learn—and do—to bring computer education to their students. In the rolling hills of North Carolina, a school system has faced the problem head on by designing a program around the IBM PC to meet present educational needs while allowing for expansion in future years.

Wake County Public School System includes the city of Raleigh and the surrounding rural areas. In the fall of 1983, students in the system's 16 middle schools began tapping away on IBM PC keyboards under the watchful eyes of their teachers, the cartoon character Snoopy, and other "friendly creatures." Brightly colored posters of Snoopy and of bugs parading across the wall proclaim, "Don't let computing bug you." In another classroom, an entire wall is devoted to posters and clippings on computer career opportunities. On the opposite wall, just above a pair of boys bent over their PCs in an attitude of keen concentration, is a poster with a chick emerging from its shell. It's captioned, "Arise, go forth, and conquer."

A year and a half ago, taking this motto to heart, Wake County's school administration formed a task force to assess how the computer should fit into the county schools' curriculum. The director of high schools and task force head Joe Moody handpicked a nine-member team from the central office so that it would represent a variety of backgrounds and perspectives. Team members would decide how the county would combine computers and teaching in the coming years. Their responsibilities included preparing a status report, developing a program of implementation for the first year, and outlining what might work for future years.

The first thing the team noticed about the county's computer curriculum was a big gap in the middle school program. There were some computers in the ele-

mentary and high schools, but few or none in the middle schools (grades 6–8). "The way it was set up wasn't at all productive," said Moody. "Having had some exposure to computers in elementary school, the kids were getting to the middle schools and saying, 'Hey, what's next?' And we didn't have the equipment or personnel to offer them what they needed . . . We didn't even have the basics. That's when we realized the emphasis should be on the middle schools first."

Once the school administration's task force made its initial survey of what the schools in Wake County had, it began developing a way to implement computer education for the middle schools. In an overall revision of the middle school curriculum, students were given more choices in shaping their programs of study. "Under the umbrella of the elective program, we wanted computers to be one of those choices," said Gerry Ritter, director of middle schools and a strong advocate of introducing computers into the schools. "But it's more than that. I don't want to see a computer gap develop with these students. It's important for all youngsters to have computer training now and have it grow with them in their later school years. This is the best age for kids to explore computing."

The focus in Wake County's middle school classes this year is on computer literacy, problem solving, and, to a lesser extent, programming skills. In a second phase, students will use the computer to study the traditional subject areas—history, language, and so forth. "These are the kids who will be the 21st-century workforce," explained Ritter. "They will need computer skills no matter what they choose as a career—math, science, language arts, or social science."

The county allotted a total of about $300,000 to outfit a lab for each of the middle schools this year. The plan is to equip the high schools in the 1984–1985 school year and the elementary schools the following year. The high school lab is in the planning stages now.

In-Service Training

One thing the task force learned from the first year's experience is that training of high school teachers should begin early. "We will definitely start training before the summer, as we did with the middle school teachers," said Moody. "We would also have liked to spend more time detailing a long-range plan and the uses of the configuration."

Accordingly, the county bought more

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than 135 computers with matching software. It also bought in-service training. "We couldn't afford to have the vendor drop off the computer and then ride into the sunset," Moody observed. "We knew there was a lot of good hardware out there, but we were particularly interested in the kind of support the company could offer us. That is our greatest need. We can't train people fast enough."

The task force had to determine, in very concrete terms, what the objectives would be for the middle school and what their needs would be for hardware, software, and in-service training. After listing the requirements by priority, the task force came up with the IBM PC as the best machine for its purposes. The extensive in-service training the company provided was only one of the major reasons why Wake County settled on IBM. "We feel IBM's state-of-the-art hardware will be able to handle upcoming software," said Moody. Recent trends in software favor the IBM PC's 16-bit microprocessor.

> We should go with the company that will set the standard in the industry.

"We also feel that IBM is moving so rapidly in software development that we should go with the company that will set the standard in the industry—in hardware and software."

The task force's decision to buy IBM computers still was a long way away from full implementation. For one thing, the state educational system has procurement regulations governing large purchases. "We had to go through a bidding process," explained Moody. "If you're going to buy something that costs more, then you have to justify where the public dollars are being spent." The task force drew up a list of the mandatory and desirable specifications, and the state obtained several bids on the project, then awarded the contract to the lowest bidder to meet all the mandatory requirements. IBM prevailed in the bidding and signed a 1-year contract with Wake County.

The contract provided the schools with a 30 percent discount off the list price. It also obligated IBM to help the county school system set up its own parts and service department. "By having our own maintenance department, we've been able to cut down on the turnaround time and

From page 51

housekeeping operations and are easy to understand once the key concepts are clear.

One useful way of thinking about files is to picture them as a stream of characters, a sequence of letters from an alphabet of 256 characters known as ASCII.

The major reason that this is a useful way to regard files is that this is more or less the way the operating system regards them. If it helps, you might like to think about a file as just that – a file in a filing cabinet.

This analogy is interesting, but soon breaks down. Before this happens it does highlight some vital points. The first is the name. Just as a file in a filing cabinet is usually named, eg The Dijkstra Account, so too a file on a disk must be named.

Whereas in a filing cabinet a name is convenient but not essential, with a disk a filename is vital – there is no convenient way to browse through all the files, looking at their contents, irrespective of their names. Really, we need a name to tell us that the file exists.

Each file has properties besides its name and its contents. Also associated with each file is its length, the amount of disk space used up by it. Experience has shown that this is an extremely useful characteristic to know.

But the most important characteristic of a file is the file type. This is information saying whether the file is text, or graphics, a basic program, or an executable machine language program, data or whatever. On an Apple under DOS 3.3, the filetype is a single character, not part of the file's name, which determines the permissible operations that can be performed on a file – eg, BLOAD for Binary files, LOAD for Basic files. On a CP/M or MS/DOS machine, the file type is the last 3 characters of the filename – thus DEMO.BAS is a basic file, whereas FASTDEMO.COM is an executable machine language file.

By far the most interesting filetype is directory. To understand this we launch into another digression – where are all these properties of a file, such as its length and its name, stored? The answer is a "directory".

A directory is a special type of file that usually resides on a fixed portion of the disk, which contains the information on where to find the other files. A directory is like an index – it tells the computer, and hence the user, where to look for information.

This is relatively simple. We complicate things slightly, but increase the utility of a computer enormously, by allowing "hierarchical directories" – a directory can contain a file that is another directory. This innovation is best understood by example.

In the illustration, a box represents a file's properties; the text inside it the name of the file. Note the top file/directory. It is special. It is sometimes called the volume directory, or the root directory. As it is named, it effectively provides a name for the disk. Thus this disk is named EXAMPLE.

Inside a directory is information about files. It just so happens that the file MAILINGLIST is a textfile, a file that contains normal English text; the file FUTURES is a Basic Program; and that the file ASSIGNMENTS is a directory, a file that contains other files.

Ian Gronovski is a computer consultant based in Sydney.

cost of repairs," said Moody. IBM supplied training for two maintenance people and established a procedure for ordering IBM parts with a maximum delivery time of three days.

The first priority for computer education in Wake County's middle schools has been to give each student some initial exposure to computers and then in future years to provide increased instruction and hands-on use. "Our major concern is that all of our children have some access to the skills from a literacy perspective—just knowing what a computer is and what it can do," declared Ritter.

To achieve this goal, each of the middle schools was outfitted with a fully equipped lab, consisting of 10 monochrome IBM PCs each with an additional 64K of RAM added at the factory, two disk drives per computer, and a printer for each lab. The county's two "Gifted and Talented" schools were already well equipped, so attention was focused on the other 14 middle schools in the Wake County public school system. "We went in and supplemented what each school already had, providing anywhere from five to ten computers," said Moody. With just two to four students working at each computer, each school has the capacity to offer a full one-third of its students a class in computing.

All of the schools are offering the same four classes this year; next year the curriculum will expand. "Computeronics" introduces the team problem-solving approach to the beginner who has some anxiety about computers. Students are placed in two-person teams, which work together to solve problems on the computer. There is no predetermined way for approaching each problem and teams are expected to proceed in their own ways. For the student who wants to learn more about word processing and spreadsheets, there is "Personal Computing," a class that uses *EasyWriter* and *VisiCalc*. On a more advanced level there is "Compters, Computers, Computers," a class in structured BASIC. A fourth class in Pascal is taught only at three of the schools in the system.

Middle school students are given the opportunity to work on their own.

A Magnet School

One of the schools offering Pascal is Daniels Middle School. It's the only school in the county where all students have the opportunity to take a full-semester computer class in the 1983–1984 school year. Principal Peggy Holliday estimates that 57 percent of her students took such a class the first semester and the other 43 percent will have the option to do so the second semester. "Once everyone has been introduced, the priority next year will go to the incoming sixth graders and the seventh and eighth graders who come into the school as a magnet school."

> Each school has the capacity to offer one-third of its students a class in computing.

Daniels is a magnet school that students with a particular interest in computers can attend if they live within the county boundaries. This is the second year of Wake County's magnet school program in which inner-city schools offer some special emphasis as a way of drawing students into the city from the suburbs for purposes of desegregation. Daniels, located in an old section of Raleigh where few school-age children live, was made the math, science, and technology magnet this year. Despite its lovely setting—a tree-covered hill surrounded by homes built at the turn of the century—the school once faced a declining enrollment. Now, with 39 new

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Teachers give specialized attention to their students.

In "Computeronics," students are placed in two-person teams.

IBM PCs, there are almost 1,200 students and a waiting list for next year.

"Our computer lab is definitely a drawing card," asserted Holliday. The main lab has 30 computers split into three classrooms; the other nine are in the lab in the school's second building. At Daniels the administration tries to maintain a ratio of two students per computer and one teacher for every ten computers.

Teachers give specialized attention to their students. While Jeanne Nerone is teaching Pascal in one room, Mary Ann Bardon is showing the kids in her "Personal Computing" class how to put together a letter. And on the other side of a glass wall separating the second and third classrooms, Emily Barfield is peering at the rabbit on one student's screen as the student asks, "Are the ears supposed to be hollow?" Teaching methods are varied. *VisiCalc* is used to tally the school soccer team's wins and losses and *EasyWriter* for writing a letter to the governor asking for his favorite recipe to put in the class cookbook. The approach works.

Mary Ann Bardon has noticed a big difference in classroom behavior since the new computers arrived. "It's a great motivator," she said. "You can pair a slow learner with one whose skills are higher, and it's amazing the progress they make together." She has one student in class who has gained self-confidence from working with computers. "It's the kind of thing where a student can do something specific and see that he has completed it and done it well."

> The school once faced a declining enrollment. Now, with 39 PCs, there is a waiting list.

School children will be able to take advantage of the future planning of the task force. Task force members spent long hours researching how computers can be used in teaching everything from the performing arts to physical eduction and the sciences. "We did a lot of brainstorming to project what will be possible in the future and came up with over 20 proposals," said Moody. His favorite possibility is using interactive video. "We'd like to have a slide library using interactive video where thousands of microscopic presentations could be stored and you could just pluck out what you need. But that takes time, money, and people," he observed. For the next couple of years, the emphasis will be on preparing the children of Wake County for such possibilities. From there the opportunities are endless. ■

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ORC 044

Future Computing Sees XXT Lap Portable in IBM's Future

At Technology Seminar, industry researchers look into fuzzy crystal ball of IBM PC compatibles.

BY RON WHITE

RICHARDSON, Texas—A briefcase-size, battery-operated computer from IBM Corp. by 1985 is a good bet, according to one of the best IBM and PC industry researchers, Future Computing Inc. This is just prediction—about an often inscrutable company and an exciting product line—presented by the Dallas area research group at a recent Technology Day seminar.

Future Computing claims no inside information as to what's going on in the IBM labs. Based on trends in technology and the marketplace, the firm sees the following developments:

- IBM's introduction of a briefcase-size, battery-operated computer probably by 1985;
- An advanced version of the PC-XT, incorporating graphics and sound capabilities similar to those in the PC*jr*, and a true 16-bit bus;
- IBM personal computers based on more advanced microprocessors, creating more powerful machines at the expense of compatibility with the PC;
- IBM-compatibles and independent software vendors gaining ground in their share of the IBM-dominated market.
- Egil Juliussen, Future Computing's chairman, emphasized that current technology does not lend itself to producing a briefcase portable that matches Future Computing's definition for the highest standard of compatibility with the PC—even if the lap-size computer is created by IBM. "Operationally compatible," according to the researchers' definition, means a computer can run off-the-shelf software written for the IBM on 5¼-inch floppies.

"The power requirements to run a floppy disk drive are so large that the only battery that can handle it is the one in your car," Juliussen said. Another constraint on compatible, lap-size computers is liquid crystal displays, which are slow and have only one intensity, he added.

Declining Compatibility

Still, Juliussen sees IBM introducing a briefcase-size portable by 1985, and he predicts that the new machine, along with a "book-size" computer he did not elaborate on, will account for 8 percent of IBM's personal computer revenues by the end of the decade. But, the ultra-small computers will probably be less than 100 percent compatible with the PC.

In the meantime, a high-end version of the XT is expected, possibly later this year, according to Future Computing's staff. They dub it "XXT." The XXT would have two buses, one external that would match the current 8-bit bus of the PC to ensure compatibility, and an internal 16-bit bus that would take advantage of the full data path capabilities of the PC's Intel 8086 microprocessor. The super-XT would have better support for hard disks—up to 70–100 megabytes—and include a superset of PC color graphics and sound generation, two areas in which the PC*jr* is a more versatile performer than its big brother. Standard features on the XXT would include a color graphics adapter, printer interface, serial port, and a calendar/clock. Expansion memory, hard disk and streamer interfaces, and support for local area networks would be available as add-on boards.

Future Computing's staff only speculated that IBM may go further in the development of more powerful personal computers, all based on Intel's 16-bit family of microprocessors.

New Chips

Intel's 80186 and 80188 microprocessors, for example, include direct memory access, counter/time functions, and some additional instructions all on the chip. John Hemphill, vice-president of Future Computing's Technology Group, said that taking advantage of the additional features of either microprocessor would require relatively minor conversions of some of the existing software for the PC, such as programs that use the computer's sound capabilities. The chips would also limit the PC's expandability, he added.

Using Intel's 80286 microprocessor would create a machine more capable of handling the windowed, integrated application programs and of supporting local area networks, two features that are attracting the attention of users, Hemphill said. But most software would require more extensive conversion to take advantage of the chip's full capabilities.

While not going so far as to forecast IBM's production of an 80286-based computer, Hemphill said its introduction would be "appropriate" in the third quarter of 1985.

The possibilities presented by Future Computing suggest IBM may be embarking on paths that lead to incompatibility with its own PC. That might be some comfort to the computer manufacturers who sent representatives to the seminar to learn about the problems of creating and selling a computer that's as compatible with the IBM PC as possible without inviting a copyright violation suit.

Refining Definitions

The number of computers in the operationally compatible category has increased from half a dozen a year ago to more than 45 machines. In fact, the number of computers that now match Future Computing's highest standard of being able to run most off-the-shelf IBM software has grown to the point that the classification is losing meaning. Future Computing is considering further refinement of its standard of compatibility.

The trend is toward being as identical to the IBM as the law will allow. Ron Ward, executive vice-president, said that those companies that insist on making "improvements"—such as 3½-inch disk drives or faster microprocessors—are going to have a hard time finding market acceptance.

For compatibles in general, Future Computing's research predicts their share of 16-bit hardware sales will increase from 30 percent in 1984 to 38 percent by 1989. At the same time, IBM's share of that market will decrease from 55 percent to 42 percent. (The remainder is made up of third-party manufacturers of such hardware as add-on boards and disk drives.) During the same time, IBM's share of the software market for PCs and compatibles will decrease from 32 to 23 percent.

But the computer market will increase so dramatically during this decade that IBM won't be suffering even if its share of the market in the personal computer field decreases. Future Computing expects overall personal computer hardware sales by 1989 to increase from $4.5 billion to $17.1 billion and software sales to increase from less than $1 billion to nearly $7 billion. ■

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All Hands To The Computer!

Yacht racing and cruising can involve a lot more than compass, crew and bottled yo-ho-ho. This deadly serious, big-money business has embraced computerisation with undisguised glee.

Computers in various guises have been used aboard yachts for some years, but because of size and weight (including power supply – batteries weigh a lot), not to mention cost, only the flash maxi racers and the multi-million-dollar 12 metres were able to make much use of them until very recently.

In the last 3 years the picture changed radically with the advent of powerful, compact, mini computers and a variety of clever chips. These have made basic instruments very smart and allowed the owners of average ocean racing yachts to consider the possible advantages of computerization.

The first company into the market was Brookes and Gatehouse, a very well established British firm that made its name manufacturing and servicing yachting instruments that work reliably and are mostly waterproof. In 1980 it produced the original version of its Hercules 190 system which, as well as providing all the standard instrumentation, was able continuously to compute true wind speed and angle (unaffected by the "apparent" wind created by the movement of the boat) as well as Velocity Made Good (VMG).

In the next 2 years the US companies, Atlantic, Signet, Rochester, Kenyon, and International Marine, the Japanese company, Akashi, and the European company, Danaplus, released performance yacht computers. Linked with radar and a micro computer, as on the maxi yacht Nirvana, these systems allowed a skipper to continuously monitor the yacht's handicap performance against the rest of a fleet, as well as stipulate optimum courses and, relying on stored information, assess boat performance against theoretical maximums.

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STEARNS
DATA AND WORD PROCESSING

computers are doing to yachting in Australia is the latest Brookes and Gatehouse Hercules system, still designated the 190. This is not necessarily the most sophisticated system, but in terms of computers and yachting is a little like IBM in business computers. The company claims some 80% of the Australian market and can boast an international servicing network.

Brookes and Gatehouse also has had a lot of experience in keeping salt water out of delicate instruments. This is of critical importance where the salt water is likely to come in contact with metal and an electric current.

The basic instrumentation is called the Hornet series. The Hornet provides standard windspeed and direction and hull speed, all of which is fed through micro processors and produced as digital displays. All functions are fitted with calibration which is virtually infinite to allow the system to be tuned to the characteristics of a particular boat, and alarms that go off when, say, windspeed passes a critical point, or boat speed drops.

ALL FUNCTIONS are fitted with calibration which is virtually infinite . . .

For power boats there is a system called Hunter, which gives engine information, boat speed and water depth, without the wind gear.

The Hercules system itself is going through a fairly continual process of refinement. In its current form, it takes the information from the various instruments, plus sensors. To this can be added inputs for compass heading, the

Fine-tuning Australia II

During the early days of their trials for the America's Cup, the crew of Australia II, skippered by John Bertrand, did a lot of work with their computers, testing different sails in different wind conditions to discover which worked best.

On board, a variety of sensors was reading wind speed and direction, hull speed, angle of heel, compass course, the pressure on rudder and trim tab and other details, which were fed through an American-made Ockam system.

This information and a lot more could be read out on the boat, and was in any case transmitted to the tender, Black Swan, where another Ockam central processing unit interfaced with a Data General Micro Nova used for magnetic tape storage, while on shore there was a Data General 4X mainframe computer used to process the huge amounts of data recorded during each day's sailing.

It was a very impressive volume of computational gadgetry, built for the purposes of sail testing and some other work. But ultimately it was to prove not all that useful for sail testing, although it performed splendidly in assisting the tactical management of Australia II during the races themselves. After a while, Australia II went back to using other 12 metre boats as trial horses while they tested sails, and much of the subsequent testing was to be done the same way.

The reason was simple enough, and familiar to anyone who knows the oldest computer cliche. The information being fed into Australia II's computer, especially the vital stuff about very small changes in hull speed through the water, was misleading and it was recommending the wrong sails.

The results were wrong enough for the errors to become obvious, but the reasons why this was happening were not. It turned out that the sensor used to measure hull speed through the water was just not reliable enough for the functions it was being asked to carry out.

Almost all hull speed instruments rely on a spinning wheel of some kind, in some cases a paddle wheel device, as on Australia II and in others a form of free-wheeling propeller; either type usually mounted with tiny magnets so that a small dynamo is created by the spin. The current generated can then be amplified and read out as boat speed on an instrument.

But while the accuracy of these devices was fine for all conventional purposes, they have proved to be unreliable when readings down to one-hundredth of a knot are critical in further calculations. A very small piece of marine growth, such as barnacle spat, on the blades can make a difference. So can choppy water, and the fact that the instrument is at a different angle of incidence and different depth below the surface depending on how the yacht is heeling.

In the sort of evaluation that Australia II was attempting it was absolutely necessary for the sensors to be able accurately to indicate the wind speed and direction, hull speed and compass heading.

The critical answer is Velocity Made Good (VMG). In yacht racing the ability of a boat to sail into the wind – usually at an angle between 30 degrees and 45 degrees to the wind direction – is critical, and a lot of fine tuning is involved in establishing how a boat covers the greatest distance directly to windward.

One sail might make a boat go slightly faster through the water than another, but if at the same time it means that the boat is pointing at, say, only 37 degrees to the wind instead of 34 degrees, its VMG might be lower and the time it takes to reach its goal longer.

There are a host of factors that enter into the calculations of how a boat is driven (see separate story) and that makes essential fairly fancy computation, especially if computers are to be used in real time, providing information that can be used while the boat is sailing.

So to a large extent, by their application to the finer points of yacht racing, computers have forced far tighter degrees of tolerance on equipment which has been used in basically the same form for most of the past 2 decades. For most of the problems found, answers are already coming onto the market.

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HERCULES CAN be linked with almost all mini or personal computers to process such information.

angle of heel, salt water temperature, water depth and 4 others.

At this stage, the 4 others are the rudder angle and the tension of the backstay and forestay and boom vang (the stays hold the top of the mast to the bow and stern, the vang puts downwards pressure on the boom underneath the mainsail. Between them the 3 tension inputs reflect on the position of the mast and the shape and configuration of the sails).

Brookes and Gatehouse says Hercules can be linked with almost all mini or personal computers to process such information.

The company uses Apple equipment itself, and so has developed its own programs to run with hardware equipment such as the Apple IIe. Into this can then be linked Sat Nav, and the navigator can then input information such as on the tides.

Armed with all this, the system can produce quite fancy results. Sailing into the wind, the Apple will indicate the 'lay lines' – the lines along which the yacht needs to sail to reach its next mark at maximum speed of approach. These lines change constantly as wind speed and direction change. In theory the sailor need only sail parallel to one lay line until the boat intersects another, then tack onto the new lay line.

With the wind behind, the results can be even more spectacular. If the course is dead downwind, the aim is to achieve maximum negative VMG (which is always measured as progress directly into the wind). The program will predict how fast the boat should be going away from the wind and then produce percentages of this maximum. Heading directly downwind, this might produce 80% and as the boat shifts slightly away from the wind direction and the sails operate more efficiently, rise to 100% or more.

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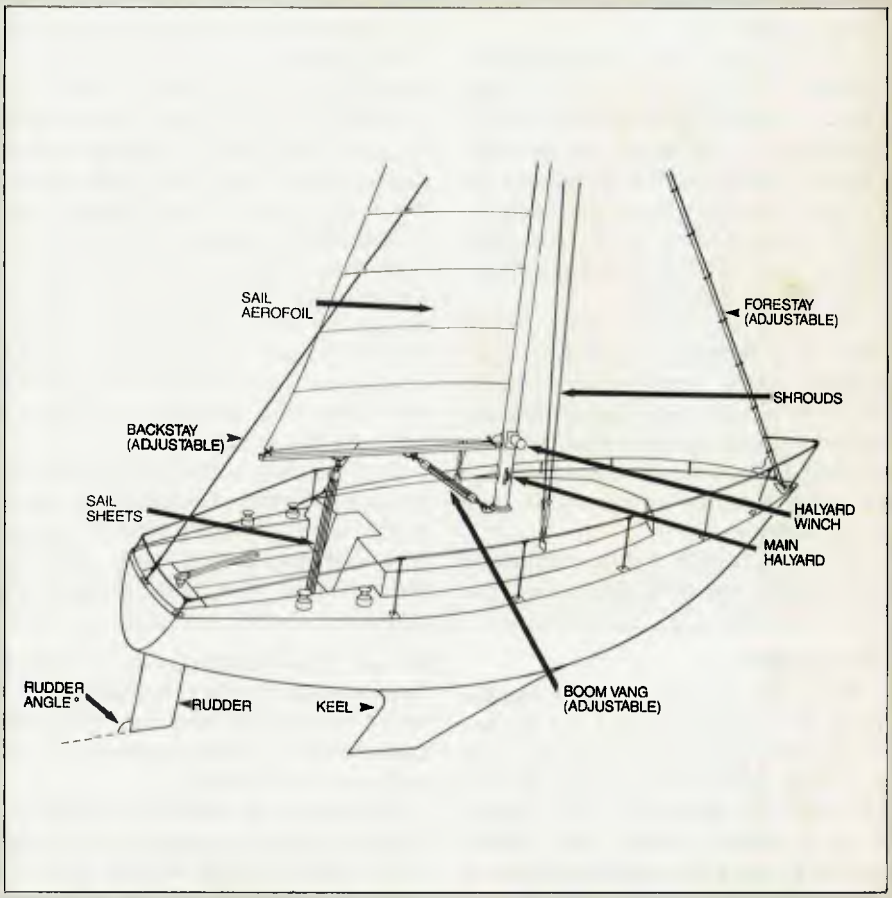

COMPLEXITIES MADE SIMPLE

Why a computer on a yacht? It really is all very simple, which means that the calculation of how fast a yacht can be made to go through the water in the right direction is very complex indeed.

The forces that drive a yacht are an interaction at the margin of 2 different media – air and water – which behave quite differently. Each change in the activity of either medium – a shift in wind speed or direction, a tide change, wave formation – creates a new set of circumstances where a different combination of sail trim and boat trim will produce the optimum result.

These are the factors that sailors have always assessed, through knowledge gained by experience. But like many other areas of computer application, the adaptation of computers to sailing came at the end of a series of developments in the not very distant past which changed radically the way yachtsmen go about what they do.

In the last 20 years yachting, along with a lot of other sports, has become far more "scientific" in the sense that people trained in other environments have brought radical, new approaches to bear on the problems sailors have always encountered.

Even without an on-board computer, the results have been remarkable. Understanding the theory of what you are trying to make a boat do is clearly basic but in a sense the application of scientific principles to sailing has raised as many questions as it has answered.

The difficulty is that sailors now know that so many factors come into

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play at the same time that responding correctly in all respects in all circumstances without the aid of some form of computer is virtually impossible. Generally speaking, the champions are the ones who have come closest to the optimum most often, but even at their best, a lot of their decisions have necessarily been best guesses.

Computer applications to yachting come in 3 strands – tactical decision making, where computer applications are fairly simple and considerable development work has been done, and tuning decisions where the interactions are far more complex and work is only really beginning.

The third is now partly confined to Australia, in use of computers to work out where you are, although computer links to various navigational aids in any waters are rapidly becoming universal.

Australia has a unique environment in ocean racing terms because navigators in the Northern Hemisphere can use two very handy systems, Loran C and Decka, which continuously give positions to an accuracy of about 40 metres. In Australian waters there is (only recently) Sat Nav, available each time the satellite passes overhead. An on-board computer makes it a lot easier to follow dead-reckoning positions in between passes of the satellite.

(Radio direction finding is too inaccurate at any distance from the radio transmitter, as radio waves tend to spread with distance. Omega tends to be inaccurate close to its transmitters, which reduces its usefulness in east coast Australian waters. Omega also requires substantial power supplies normally only available on large cargo ships and atomic submarines.)

But even Sat Nav is a great change on the conditions of only 4 years ago, when once out of sight of land, navigation was possible only by dead reckoning calculations, checked perhaps 3 times a day by celestial observations.

In the Sydney to Hobart race in 1980, the fleet spent 2 days in heavy fog in an area of sea subject to strong currents. There were many red faces when the fog lifted and the fleet was able to see where it was. Some boats, including crack racers, had sailed into deep bays on the Tasmanian coast and at least one had

Continued on page 69

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When the course becomes too far away to be compensated for by increased boat speed, the percentage will then drop again. So, simply by finding the maximum percentage and sailing to it as conditions change, the system should produce the optimum course at all times.

In navigation, the system will provide a continuous dead reckoning position and, because such factors as leeway (the amount the boat is driven off course by wind pressure) can be input, and the computer itself can record and compensate for the idiosyncracies of different helmsmen, results can be highly accurate.

The future depends fundamentally on the programmers. Brookes and Gatehouse reckons its program uses substantially less than the capacity of the Apple IIe and that with improved sensors it should be possible to expand greatly the real time analysis of what a yacht is doing.

The hull speed problem that impeded the use of computers in the America's Cup (see separate story) has been solved, with a system that relies on 2 solid state units widely separated around the concave curve of the hull.

These use high frequency emissions, which travel at a constant rate through water, and record the doppler effect, so giving the speed of the boat relative to the water some distance away from the hull, where it is free from interference from turbulence created by the boat itself.

But the big breakthrough for Australian yachts might be 5 years away, when the United States finishes delivering its Navstar satellites into orbit. No decision has yet been made about when they will be available for general use, nor the accuracy that will be released (reported accuracy is 7 centimetres in 3 dimensions in military applications, but a less accurate version is likely to be released for civilian use).

The advantage is that a system such as Navstar would tell a yacht where it is travelling over the earth's surface, rather than through the water, which is usually moving over the earth's surface itself. Combined with the ability to analyze and check on a yacht's performance against its potential, the result will be a computer-fed system that will allow merely competent sailors to perform like experts – and a substantial increase in the already very considerable cost of yacht racing.

In Australia, at present, the big need is for a course to teach sailors about computers so that even the technology available today can be used to advantage.

Footnote: Even basic computerized systems do not come cheap. As a guide, the basic Hercules system retails at $3,500 to $4,000, depending on the number of readouts required. Combined with Sat Nav and Apple IIe, the price tag goes to $14,000 to $15,000, again depending on readouts. A full system tailored to a maxi racer with multiple readouts and all functions integrated, goes up to $25,000.

Bob Mills is a journalist and keen yachtsman.

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Helping is really what we like to do best.

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given a position many miles inland.

The tactical problem, once a yacht has worked out where it is, is to decide where to go from there.

Very rarely, especially in these days of very high performance yachts that work best in specific configurations, is the best answer the shortest distance between 2 points.

As one example, a yacht sailing an America's Cup course ought to have a "square run" down one side of the triangle, with the wind blowing from directly behind the boat. The shortest course is a straight line, but having the wind directly behind the sails is the least efficient way to make the sails work. Sailing the boat at an angle to the wind, then jibing so that it sails 2 legs of an obtuse triangle, increases boat speed through the water but also increases the distance that has to be covered.

The calculation involved to work out the best of 2 possible alternatives is straightforward, but it becomes much more complicated when the issue is which of all possible courses is the best.

Tuning is more complicated, because so many factors can affect a boat's speed. When you consider that even long ocean races like the Sydney to Hobart are often won and lost by only a few minutes or seconds after days of racing, any marginal improvement can clearly be critical.

The mast and sails of a high-performance yacht work as a vertical wing, with the curved surface of the sails producing what would be "lift" in an aircraft and is drive in a yacht, pulling it ahead into the wind.

Aerofoil

But unlike an aircraft wing, the rigging of a yacht allows the aerofoil surface to be altered. The reasons why yacht masts are built to relatively small sections are not only to keep weight low down in the boat, but more also to allow the mast to be bent to various shapes to change the configuration of the sails.

By using a combination of tensions on the halyards which pull sails up the mast, the stays which control the lateral position of the mast, and the sheets (the ropes used to control the bottom of the sails), most of a yacht's sails can be trimmed into a variety of shapes.

Certainly the advent of compact and relatively inexpensive on-board computers is changing the entire nature of the sport. The likelihood is that changes already apparent are only a beginning.

With systems already available, a yacht skipper can quite easily assess the performance of not only his boat but various crew members in different jobs – particularly the helmsman and his ability to keep the boat to a true course with the least rudder movement to act as a brake.

And although yachting is a highly conservative sport, where initiatives take a long time to become accepted, computers promise to refine so much which is now guesswork that their spread, especially in ocean racing fleets, appears inevitable.

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The computer's victory over the written document is virtually assured, which leaves a question mark over who will manage the vast libraries of electronic data.

Information is a growth industry that is rapidly accumulating resources of increasing economic value. But unlike other resources, such as oil, information is not depleted as it is used. Information just generates more information.

For example, papers published about on-line retrieval of information are increasing: more than 3,000 had been published by 1981 and articles continue to appear. This is one of them.

This year, 2,000 on-line databases that index and abstract published material are in operation world-wide – an 18% rise in 6 months. And the largest database vendor in the world, Dialog Information Services Inc, reported at the end of last year that it had 50,000 customers with interfaces to all major domestic packet-switched networks and leased-line connections to Japan and Great Britain.

Improvements in datacommunications provided a powerful stimulus to growth in on-line database use. The result can be access to huge stores of information over vast geographic distances at acceptable per-unit search costs. Suitable communications software and modem hardware make a PC an ideal terminal for on-line database searching and add little to its basic cost, so theoretically all the knowledge we will ever need will soon be at our fingertips.

But who are the knowledge workers who will guide us through these vast dumps of information? The largest group is the estimated 7,000 professional librarians working throughout Australia for the librarian's role is changing as the information world changes.

Dorothy Peake

Academic libraries

This is typified by academic librarians, who have a high profile within the library community and whose interest in on-line database searching has been well publicized since the early 1970s. New insights into what is happening in libraries have recently been provided by a study of them by Connie Wilson of the School of Librarianship at the University of New South Wales.

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Australian academic libraries mainly access DIALOG, Medline, Ausinet, Orbit, ABN, I.P. Sharp and CSIRONET, she found. Their use of overseas databases jumped appreciably after the introduction in April 1979 of MIDAS, the Australian domestic packet-switched network, when the overall cost of on-line searching was substantially reduced.

Now all Australian university libraries and most libraries in colleges of advanced education (CAEs) offer on-line database searches to users employed by their respective institutions. Some also offer searches to external users.

In 1983 Wilson identified about 246 on-line searchers in Australian academic libraries. However, fewer than 8% spent all their time retrieving information on-line. The rest only rarely resorted to on-line techniques and mainly used traditional manual methods to obtain information.

Wilson estimated that some 24,000 on-line searches were carried out by academic libraries in 1982-1983 at a direct cost of about $0.8 million and a full cost, including staff and indirect costs, of about $1.3 million. However individual searchers, on average, did less than 4 on-line searches a month.

The relationship between traditional and on-line searching is clearly changing but remains symbiotic. Academic libraries mainly use on-line services for compilation of bibliographies. Increasingly, however, they also use such

services to answer simple questions requiring, say, verification of a citation. The value of on-line services providing statistical data or offering full text searching of journal articles is increasing and can be expected to expand as more such services become available.

Extension of on-line services has led so far to only a few cancellations of hard copy abstracts and indexes, but the trend is being carefully watched by publishers. It could result in increased per-unit on-line search costs unless, of course, expansion in the number of customers provides sufficient economies of scale to keep per-unit search costs down.

Training

Librarians have an understanding of and experience in using published abstracts and indexes that gives them an advantage over other professionals in learning techniques for on-line database searching. Nevertheless, training from system representatives such as Insearch Ltd/Dialog, Ausinet, etc, is available to anyone who enrols.

This is the most sensible way to gain skills in on-line searching and, indeed, is the method favoured by 75% of Australian academic libraries for the two-thirds of their staff who become on-line searchers. The rest are either self-taught or trained in-house.

Some 3,000 people have been trained in on-line database searching in Australasia by representatives of systems. The majority have been librarians, or people with an information background, but recently some hundreds of end-users have also received training. Indeed, the percentage of end-users to professional information workers seeking training is now over 50%.

Academic librarians form a small and decreasing percentage of the total being trained.

As well as giving a general introduction to the system, representatives provide subject seminars and advanced seminars. Fewer people attend these now but as more receive introductory on-line training numbers are likely to increase.

Lack of standardization among database producers means that on-line vendors must massage each database as it is added to their service. The end result is that through one set of protocols users can access a wide range of subjects. Through Dialog, for example, some 100 million items are available on more than 200 databases.

However, knowledge of how specific databases are structured is necessary. Hence database providers also offer training to help users master the unique features of particular databases. Nevertheless, only slightly more than a quarter of academic libraries sent staff to seminars provided by database producers.

Some subject background is useful when searching specific databases – chemistry is an obvious example. In academic libraries only about a third of on-line searchers are also subject spe-

Continued page 78

Today's Computers is co-operating with the Library Association of Australia (LAA) to provide an enlarged coverage of the use of computers within information centres and libraries in Australia.

Our magazine, a couple of months back, began an electronic information column which is attracting growing interest from users of outside databases and users computerizing their information centres.

We now make a special appeal to information professionals for news about their operations, new software and people changes within their areas. Let us know.

Information from LAA members is especially welcome.

Our interest in the electronic and computer activities of information centres is provoked by the fact that we foresee accelerated change in the immediate future.

The fact that we are publishing the LAA logo and our co-operation with LAA does not of course signify LAA control nor approval of our editorial.

However, our agreement does mean that the 2 organizations share an aim to further educate information professionals themselves and their ultimate users in the business, government and institutional fields, about the growing important role they play in information compilation and dissemination.

We believe information centres, whether they are using personal computers or communicating terminals, will play an increasingly crucial role in organizational decision-making and research.

Ken McGregor
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How IBM Trains Its Own Staff

The time had to come when the growing data tangle resulting from multiple use of PCs within corporations demanded co-ordination. Not surprisingly it has been Big Blue which has come up with one of the most effective schemes.

With growing numbers of PC users in a corporation tapping away at their own projects, formerly tightly managed corporate information structures can dissolve into chaos.

Data used by one department may end up conflicting with data used by another, and management may not be able to resolve the conflict, or even be aware of it, in time. A true corporate nightmare.

But at the same time, the spread of the PC revolution is difficult to halt. End users are pushing for personal computing systems within their corporations because it can take DP departments a long time to develop new applications – sometimes up to 2 years.

This tension between the immediate needs of end users and the corporate needs of management has given birth to IBM Australia's concept of the information centre.

Many organizations have set up information centres, usually within the DP department, IBM claims.

IBM Australia set up its information centre in 1977. Until recently the centre concentrated on running education courses and providing telephone support to users. But at the beginning of this year it was greatly expanded.

As well as a range of educational courses, the centre offers service from initial determination of requirements to post-installation support.

Solving a problem at the IBM Information Centre.

"When people want a system, often they don't know where to start," explains staff member Alison Barnsley, a senior analyst who is a general-purpose end user consultant. "So, what we do is break their problem down into parts, help them define precisely what they need, and generally map it out. Then we educate them in the use of their system, and provide support later if they run into problems."

What this does is take pressure off the company's information systems department – its main DP shop – where major corporate systems are developed and maintained, she says.

"Our mission," says the information centre's manager Bryan Clutterbuck, "is to advance the use and effectiveness of computing resources within IBM. That means improving the productivity of end users – and therefore the whole company's productivity – while ensuring that new systems have proper business control."

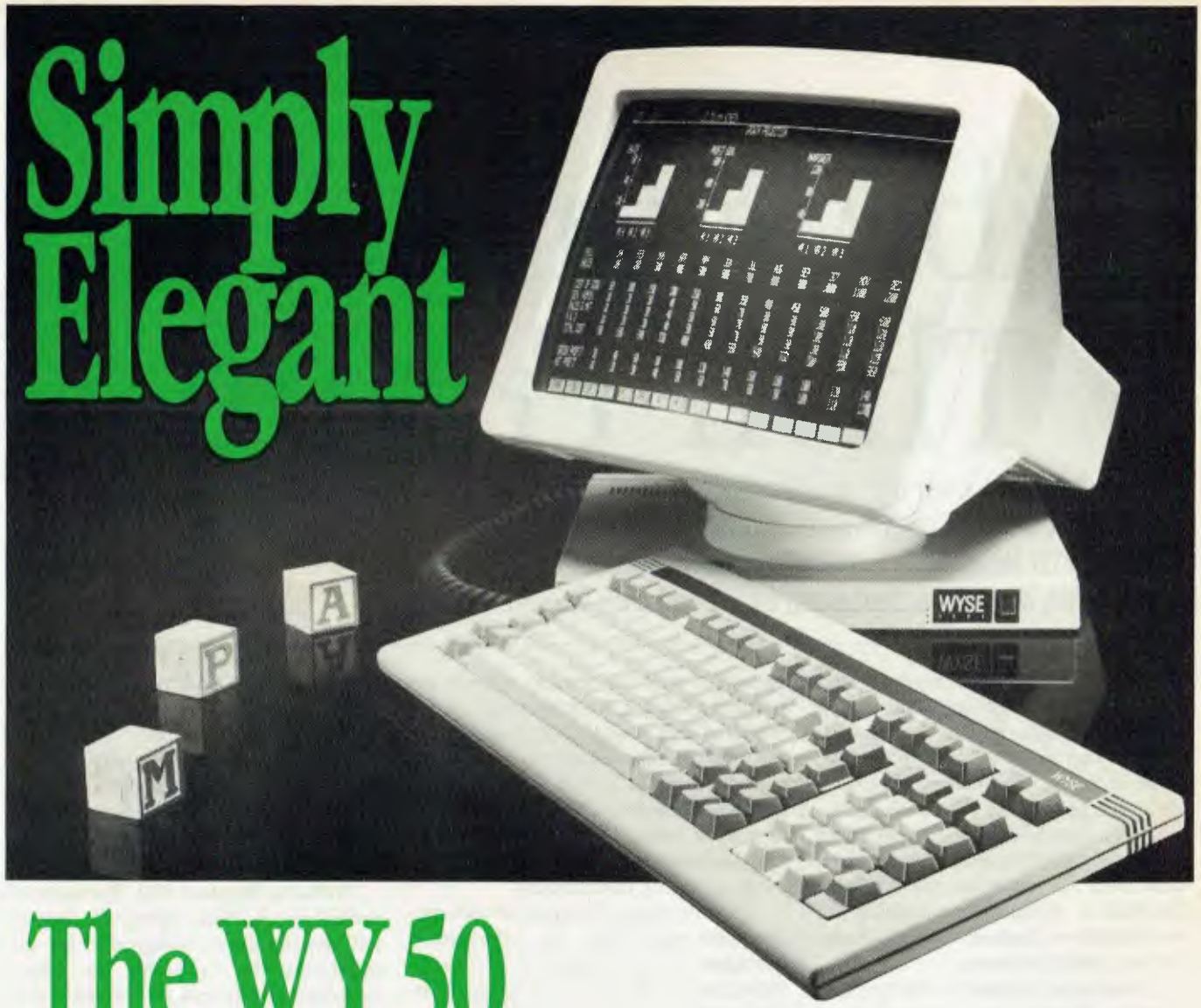
Within its corporate databases, IBM holds a vast amount of information. But all too often potential users lacked the expertise to manipulate that information to get precisely what they needed. The information centre helps them get that expertise, through programming languages such as APL or GIS (Generalised Information System), or through software tools like ADRS (A Department Reporting System).

"We're now getting requests for help from people who have virtually never used a screen before, like warehouse and repair shop staff," says Alison Barnsley.

But IBM is not totally starry-eyed about the revolution it has begun.

The centre's PC consultant, Hugh Buckle, explains: "From the company's point of view we have some major concerns. Like, what happens if the system falls over – will it impact the business? And security of data – does it have to be guaranteed and, if so, by whom?"

Bryan Clutterbuck adds: "That's why an information centre is so important these days – to ensure that the company and its end users are moving down the same track.



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Librarians Plan Their Future

Jenny Adams, executive director of the Library Association of Australia (LAA), backgrounds the imminent 2-nation library conference in Brisbane. Today's Computers will be at this important conference, represented by Ken McGregor, managing editor, and Pam Robson, our Brisbane-based writer.

Communication technology and data transmission; library networks; transfer of information relating to technological innovation; the shape of future information provision; electronic publishing. These are just a few of the topics to be addressed when more than 1,500 librarians meet in Brisbane from August 27-31 for the Joint LAA/NZLA (Library Association of Australia/New Zealand Library Association) 1984 Conference.

Delegates will attend from all parts of Australia, New Zealand, New Guinea, the Pacific Islands, and from as far afield as Germany, the US, UK and Canada.

The theme of the conference – Libraries: After 1984 – is particularly pertinent as libraries become more and more automated and have access to a broad range of computerized information retrieval systems and databanks.

Libraries no longer rely on card catalogues to provide access to information. Much of their information is now stored on-line and it is becoming almost commonplace for the library user to find himself presented with a computer terminal rather than a drawer of cards on which to carry out his search for information.

In public, school and academic libraries the OPAC (on-line public access catalogue) allows the user to access the terminal directly to find a path through the maze of information.

In special libraries (ie, libraries attached to companies, government departments etc), information systems are becoming highly complex to allow retrieval of very specific information. The systems are also becoming more integrated to provide access, not only to the published literature, but also to other information within the organization, eg, correspondence, statistics, customer files, marketing information.

A whole range of computer software designed specifically for information management and retrieval is now available to run on almost any computer from a tiny micro to a large mainframe.

The trade fair attached to the Brisbane Conference, which will display not only technology but a whole range of library products and services, has been booked out for months as the computer industry tries to make its mark in the expanding library market.

There are many issues to be addressed at the Brisbane conference. Librarians have generally welcomed technological change as allowing them faster, more specific access to better organized and broader information sources. From another angle, however, technology may have had a major influence on the reading habits of children and adults. Will video disks, video games, home computers have an even greater impact? Will the children of the future even bother to read?

The provision of information from commercially available sources places a financial burden on publicly-funded libraries greater than that which has existed in the past, and there have been a number of attempts by libraries to pass these costs on to the user.

In many cases the user may be willing and able to pay these costs, but it is vital that each Australian has an equal right to information regardless of the way or for what purpose it is used.

Professor Stephen Hill, Professor of Sociology at Wollongong University will set the broad background for the conference by outlining the broad sociological patterns of change. From this, later conference sessions will focus on more specific issues.

Dr Patricia Battin, vice-president and university librarian at Columbia University, New York, will discuss the effect of technology on user services and its implications for library management. Dr Battin has played a major role in a period of rapid change in one of America's great research libraries.

The cultural effects of electronic communication on society will be discussed by Dr Richard Hoggart, a distinguished British literary scholar and analyst of society. Dr Hoggart is famous for the book The Uses of Literacy and has served on many national investigatory committees, including the BBC's general advisory council and the Pilkington Committee on the future of British broadcasting and television.

Other issues to be considered at the conference include national infor-

Continued page 78

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Databases Are Big Business

Hartogen holds substantial equity in the Nardoo-1 well. What is the extent of that holding, and who holds the remainder?

What will Santos concentrate its resources on in the foreseeable future?

Did a Federal Court judge really rule last December that importation and sale of the Wombat computer (an Apple compatible unit) contravened the provisions of the Trade Practices Act?

These are only some of the questions that can be answered by dialling up the ACI Computer and consulting AUSINET's 31 databases.

The answers, incidentally, are:

(1) Hartogen 40%, Oil Invest. 28.5%, Cliff Oil 25%, Planet Res. 5%, Martin Oil 1.5%.

(2) The Australian oil and gas business.

(3) No. The claim brought by Apple was rejected in the Federal Court on December 7, 1983.

Publicly accessible computerized databases emerged in the US in the mid-1970s, with Australia close behind.

AUSINET (AUStralian Information NETwork), operated by ACI Computer Services (ACICS), began in 1977. Initially it served the needs of government and academic researchers.

Extensive indexes to the business press have been added, plus databases dealing in depth with taxation, or providing digests of legal cases, or consisting of sharemarket newsletters. There has been a special emphasis on factual and full text databases, says Leigh Baker, manager, information, retrieval services, ACI Computer Services.

John Fairfax, CCH (Australia), Rydge Publications and Lipscombe & Associates are amongst the many publishers involved, or becoming involved in the electronic dissemination of Australian business information via AUSINET.

The proliferation of personal computers that can so easily dial up to central computers has provided an essential part of the jigsaw.

Today, hundreds of merchant and trading banks, chartered and legal firms, and the investment, exploration, corporate affairs and marketing research departments of many of Australia's leading companies are regular users of AUSINET.

AUSINET users are billed an account maintenance fee of $25 a month, plus the connect time charges for the databases accessed that month. These charges vary from database to database, ranging between $30 an hour and $90 an hour. Thus, a typical search, taking perhaps 15 minutes, can cost between $7.50 and $22.50.

There is no joining fee, and user names and manuals are issued by ACICS within a few days of receiving an AUSINET contract.

AUSINET database coverage includes accounting, agriclture, art, business, earth sciences, economics and economic time series, education, engineering, exploration (oil and gas), legal cases and legal practice, national bibliography, public affairs, recreation, road safety, science, social science, South-East Asia, sport and sports medicine, stock exchange, taxation, tourism, transport and water resource management.

ACICS's Leigh Baker oversees the growing Ausinet operation.

Amongst AUSINET's business related databases are:

AUSTRALIAN BUSINESS INDEX (ABIX) provides wide-ranging coverage of Australia's business journals and major dailies from 1981.

AUSTRALIAN FINANCIAL REVIEW INDEX (AFRE), prepared by Fairfax's AFR INFOLINE staff, provides details of every Australian story in the AFR since April 1982, and includes the full text of the first paragraph, plus all company names, personal names and legal references appearing elsewhere in the article.

BUSINESS REVIEW WEEKLY INDEX (BRWE) is also prepared by AFR INFOLINE staff, provides details and first paragraph of every article since BRW began publication in 1981.

CASE DIGEST LIBRARY (CASES), prepared by CCH (Australia), contains descriptions and extensive digests of all legal cases reported in CCH printed services since January 1984.

AUSTRALIAN TAX INDEX (CCHI), also prepared by CCH, provides detailed indexing of Australia's tax journals plus tax articles from the business press, loose-leaf series and conference proceedings. Extensive key-word indexing is provided.

AUSTRALIAN ACCOUNTING DATABASE (ICAA), prepared by the Institute of Chartered Accountants, provides detailed indexing of Australia's accounting journals plus accounting articles from the business press. Abstracts are included for more recent material.

Where is AUSINET going next? Firstly, there are a considerable number of new databases in the pipeline, including software reviews, more full text newsletters (in accounting and exploration) and company information.

Early in 1985, the full text of CCH's 1,110-page Master Tax Guide will be released on AUSINET.

Secondly, ACICS is developing automatic log-in and automatic dial functions for AUSINET users operating on IBM-PCs.

Thirdly, access speeds have been boosted via AUSTPAC, while other planned improvements to the ACI communications network will benefit all AUSINET users.

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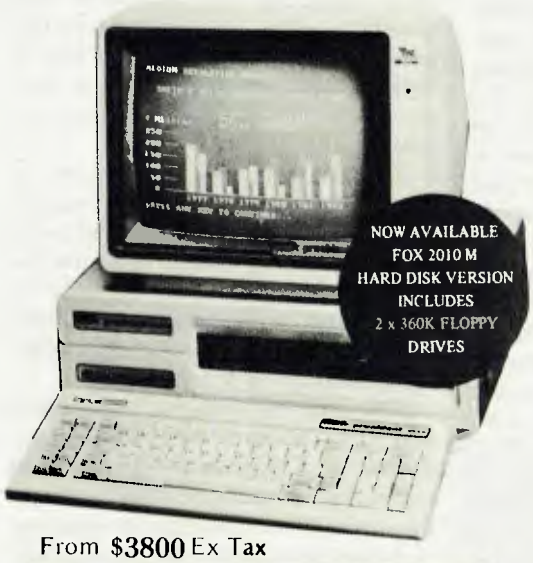

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cialists and, if this is generally true of present on-line searchers, perhaps it explains why subject seminars are less well attended than general seminars.

Trainers

Most trainers employed by database vendors and producers are librarians and many come from academic libraries. Others leave teaching posts in departments of librarianship in tertiary institutions for a life of travel as a trainer.

They must combine a high level of proficiency in on-line searching with ability to communicate those skills both as teachers and marketers. They offer a 'help' service and also advise end-users on the cost of setting up facilities for on-line searching, such as suggestions about suitable equipment and communications modems and software.

Employment of librarians by vendors and database suppliers has opened up new and exciting opportunities for the library professional. It is, however, a physically and mentally-taxing task to be a trainer in Australia. The small population limits the number who can be employed economically in training, thus requiring individuals to continually expand their knowledge of available subject databases. This is particularly challenging for staff covering a vendor of the size of DIALOG.

Difficulties that on-line trainers have experienced in teaching some end-users who have little understanding of the way indexes and abstracts are structured seem to confirm the prejudice of academic librarians that their searching is more effective than that of end-users. Nevertheless, as end-users learn to search for themselves more are likely to become proficient.

System vendors are also looking for ways to provide on-line instruction and more user-friendly systems.

As most academic librarians are neither occupied full-time in on-line searching or are subject specialists, the argument that they can provide more efficient searches than those carried out by end-users with subject knowledge may be difficult to sustain in future. Another preception of academic librarians is that end-users are unwilling to carry out their own searching. Numbers enrolling for training throw doubt on this.

ONE OF THE most obvious trends identified by system vendors is growth in the number of end-users seeking training.

Indeed, one of the most obvious trends identified by system vendors is growth in the number of end-users seeking training. Considering the low cost and easy availability of computer terminals suitable for on-line searching this is not surprising. Roger Summit, president of DIALOG, believes that end-users may in time form his largest customer base. But he too has identified problems:

"Whereas an information specialist uses services to support many end-users, thereby retaining skills, retaining familiarity and acquaintanceship with a broad variety of databases, the end-user searches infrequently, typically one or two databases, and requires a great deal of administrative support in order to produce a satisfactory search."

This comment may not be as valid in Australia academic libraries as in the US because so few here are carrying out searches full-time or are subject specialists. An average of 4 searches a month per Australian academic librarian does not seem enough to claim specialist status.

Fees

Nevertheless, academic librarians have been in the forefront in introducing on-line database searching despite the pressure they are under in coping daily with the needs of large numbers of students. As more potential end-users become aware of on-line searching the pressures on academic libraries will increase.

Already post-graduate students are engaged in on-line searching and undergraduates at the University of Melbourne and RMIT have been given free access to on-line services. Law students will also benefit substantially from on-line access to legal material with the development in Australia of CLIRS (Computerized Legal Information Retrieval System).

The up-front cost of on-line searching has led to some soul-searching among academic libraries. Some pass on charges to users while others try and absorb the cost in their budgets on the grounds that providing reference services is part of their mission. As funds for additional services are scarce, and in all cases costs have to be met, few academic libraries have actively marketed such services.

Some academic libraries charge external users full recovery costs, thus obtaining a small income from on-line searching. However, little publicity is given to such arrangements and most are worried about taking staff away from other tasks.

On-line searching of databases is seen by academic librarians as a natural extension of their traditional reference services. But day-to-day pressures on academic libraries mean that their resources and their capacity to meet new demands, should such services be widely marketed, are limited.

End-users in academic institutions may need to carry out searching for themselves if they are to make effective use of the information available around the world. The knowledge workers may in future be absorbed in training and advising end users rather than acting as their search intermediaries.

Dorothy G. Peake is head of the information resources service at the New South Wales Institute of Technology.

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mation policy, copyright and privacy, multicultural library services, freedom of information, library services to the disabled and the elderly, and production and distribution of government publications.

Before the conference the governing body of the Library Association of Australia, the General Council, will conduct a 2-day meeting to discuss a whole range of issues, including how it can meet the needs and foster the interests of librarians and information managers beyond 1984. Specifically, council will be considering the recommendations of its futures committee's report, the structure of the LAA and a code of ethics.

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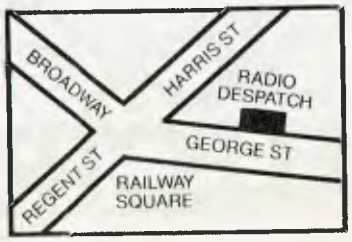

The Big Nine Test The Key Three

Exclusively for Today's Computers, the Big Nine accounting firms review 3 of the key new small computers – Sharp's Squirrel PC5000, Dick Smith's Challenger and the Sanyo 550 range.

Sharp Squirrel PC 5000

The Squirrel PC 5000 portable computer is generally a pretty Sharp device. My enthusiasm was bluntened only a little by a couple of features. The Squirrel is a "lap" computer, completely self-contained with visual display unit, 128K RAM, 128K Bubble removable memory, 30 cps printer, all battery powered, fits in a briefcase and weighs less than 6kg. It comes with MS/DOS, BASIC and the Super series of software from Sorcim.

The computer and printer cost $3,175. Bubble versions of the software are $500 a module. (Diskette versions are $215 each.) It is possible to add a diskette drive, auxiliary printer and acoustic coupler. These limit the portability of the device, but battery powered couplers are extremely portable.

Assisting me in road testing the Squirrel at home, were 2 uni students and an HSC student, all of whom dabble in computers in their courses.

The Squirrel is promoted as a highly portable machine, so it is in this context it is evaluated. Measuring 300 cm by 300 cm by 70 cm, there is not much room for anything else in the briefcase. However it was very easy to slip it into a small suitcase with the rest of my gear for an overnight business trip. Alternatively there is a separate carry-case available from Sharp.

With the bubble, battery and built-in printer I was able to continue testing.

Hardware

The display has 8 lines by 80 cols. Often only 5 lines are usable by the operator. This is very small when you are accustomed to 24 lines. It makes it difficult to see the whole picture when writing a program, scrolling or shifting sentences/paragraphs in word processing. But it is adequate.

However, without a very good light from above or behind the operator, it was very difficult to read the LED display. This was notwithstanding the adjustable angle of the display. It was readable in the kitchen which is very well lit and in my office at work. It was very difficult in my study and in the motel room.

The latter is serious, because a portable business computer will often be used in a motel room. These are notoriously poorly lit.

The Squirrel has a QWERTY keyboard but no numeric pad. It has 8 function keys which are put to excellent use. Each piece of software used the convention that F1 was a HELP Key, F7 accessed a FILES menu and F8 EXITed to the next menu. This made life very easy for the novice. There is a good sized return key and a positive click when a key is pressed.

The bubble memory was new to me. Only one set of application software could fit on a bubble, but there was another 128K for files on the bubble. To write a file to another bubble, you only had to swap bubbles and change the device code being displayed by MS/DOS from A>to B>. Similarly to use the diskettes, the code was changed to C> or D>. The bubbles are ideal for both external storage and portability.

The printer was frustrating. At 30cps, it is fast enough. The font is small but readable. But all the testers were annoyed when feeding paper. We tried bond, bank and cheap lecture pad qualities of paper. Each was very difficult to feed, especially the bond quality. Invariably, the leading edge of the paper was chewed up and generally the paper skewed when being printed. The one-time carbon ribbons ($3.50 each) do not last long. We went through 2 during the testing.

A special thermal paper which does not required a ribbon is recommended. Surely, this defeats the purpose of portability. When you are away from home-base, you want to live off the land, and do not want to have to carry special paper with you. One good feature relating to the printer is that you have the choice of printing or not printing what is going on to the display by pressing one key.

Sharp says its ribbons have a life of 43,000 characters and that its recommended paper can go in a special pouch).

I had trouble trying to attach an auxiliary printer. I was unable to have accepted what I thought were the correct instructions to activate an auxiliary printer. Not that I could have printed anything, as I did not have the appropri-

ate cable to connect the RS232 port to our Epson printer. Why is it that to drive the same printer I need one cable for an Osborne, one for an Apple, one for an IBM-PC and one for a Squirrel? All connecting to their respective RS232 ports. Why is there no standardization?

The battery is said to give 8 hours' processing without recharging. I did not try to verify this. It certainly was OK for a couple of hours.

Software

Our team was very happy with most of the software.

There did not appear to be anything exceptional or inferior about the implementation of MS-DOS.

The implementation of BASIC seemed to be identical to that on the IBM-PC with the exception of the light pen and joystick commands. It has the GRAPHICS MACRO LANGUAGE functions included to allow a considerable range of graphics to be plotted, drawn or painted. The use of function keys for RUN, LOAD, SAVE etc made many operations easier.

Similarly, there is the facility to save keystrokes by hitting the ALT key and a character rather than keying commonly occurring strings of characters eg. ALT G can replace "GOTO". Once you gained practice with these, this feature would be very useful.

The error messages are clear and in English. This was much appreciated by one of the uni students, used to cryptic notations from a far more powerful machine. Another team member commented on how much easier the *Squirrel Basic* was than *MicroBee Basic*.

Supercalc2 allows 255 rows or 63 columns. As with most implementations this does not mean 255 rows *and* 63 cols. About 1,600 cells of the matrix can be used before memory is full. That is, if all 63 columns are required only about 25 rows can be used. In common with the documentation for most CALC type programs on a whole range of machines, the documentation does not warn you of this. However a lot of data can be manipulated in 1,600 cells. I was not able to isolate any abnormal features of the *Supercalc2*.

Superwriter was a different story. It annoyed all the testers. I felt *Wordstar* on the Osborne was much easier to use. Perhaps *Superwriter* is more comprehensive and hence more difficult to learn. None of us felt we had mastered it. There are a number of niggling features. "/Just" would not justify text on the display, though it did on the printer. The algorithm for justifying both left and right margins does not recognize punctuation as words. Hence, when inserting blanks to pad out a line, it does not insert them around the punctuation. This leads to words surrounding punctuation being crowded while other words are widely spaced. It looks horrible!

When creating documents, the prompts call for fields to be entered out of the normal sequence (from top to bottom). This is disconcerting and makes it easy to enter wrong information. In another place, the instruction book and the programs don't agree. Following the steps in the book does not produce the screen displays claimed by the book. In addition, the small screen size makes it difficult to keep track of where you are.

The bubble version of *Superwriter* does not have the spelling checking facility nor many of the printer functions referred to in the instructions. The deluxe version includes a spelling checker and the extra print directions.

It was not possible to try *Supercom* as no documentation or acoustic coupler was included with the test machine. The diskette had been left in the *Supercalc* book so I did some experimenting. Undoubtedly, one of the major uses of the Squirrel will be as an intelligent portable data entry device which will allow the day's orders, measurements or results to be transmitted back to the home computer. It appeared to be reasonably easy to set up a file for this.

One disconcerting thing about *Supercom* was that at one stage, it was not possible to exit from one menu. Normally function key 8 is the EXIT key. But it did not work in this situation. The screens cycled from A to B to A to B and so on. The machine had to be turned off to escape.

There is a *Superplanner* in the set of software but no documentation or disk was provided. It allows diary and note facilities.

One very useful feature of all the Sorcim software is a 'Scratch Pad'. This is a temporary file area accessible by each of the modules. Files can be written to the Scratch Pad by, say, *Supercalc* and read from it by *Superwriter*. This allows data and text to be transferred from one to the other, greatly enhancing the versatility of the software.

In summary, the Squirrel is very portable, with good usable software. The built-in printer and *Superwriter* annoyed the testing team. It should prove to be a very convenient, intelligent portable data entry device or a very useful travelling companion.

Ian Davidson is a director of Ernst & Whinney Services Pty, specializing in information systems consulting.

Dick Smith Challenger

IBM's success with its Personal Computer (PC) is governed by factors which are not wholly within IBM's control. A large collection of third-party software products and peripherals have certainly contributed. More recently, the availability of more than 60 PC hardware workalikes or compatibles has had an incredible impact on the PC market. They have pushed the PC to greater expectations!

Now, Dick Smith Electronics UK-made Challenger will have a considerable impact on the Australian PC market. Here's why:

Hardware

The Challenger comes with a system unit which enables Basic software to be run, but without disk drives. Add the expansion unit and you add two disk drives and a parallel printer part.

If you buy the expansion unit you also receive the range of Perfect Software, which is about the same retail value as the expansion unit itself. These 2 units sit on top of each other and occupy a reasonable amount of desk space. They are almost 245cm (10") high with a colour monitor on top. This adds to a total height from desk top of 540cm (1'9"), which is rather high.

Its keyboard is laid out in a similar manner to the IBM. A few keys are in different positions, most noticeably the CAPS LOCK key. The keys are not as easy to use as some other compatibles. They have a reasonable length of travel, with an annoying click at the end.

Dick Smith's color screen is crisp in 40-column mode. In 80 column mode it still retains good definition. The color

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There really is a difference.

display is good and compares well against some of the more expensive monitors. Two half-size disk drives run silently and caused no trouble during the test period.

Most impressive was the speed of processing in many situations. It recalculated large spreadsheets very quickly. Using *SuperCalc3*, it was great to see the graphical representation of the model appear almost instantly. A Challenger demonstration program included a number of graphs. The speed of execution of these graphic programs from the time of loading to seeing the graph on the screen was as good as any other PC used by your reviewer.

Software

The Challenger is supplied with its own version of Microsoft's operating system (MS/DOS), called Advance 86 Personal Computer DOS. PC/DOS will run on the Challenger, including versions 1.1 and 2.0. This indicates a close compatibility with the IBM-PC.

Perfect series of software is supplied free of charge. This includes a spreadsheet, word processor and spelling checker and a data management program. They have a retail price of about $1,800. *Perfect Calc* and *Perfect Writer* are reviewed in some detail in many publications, including the *Microcomputer Software Buyer's* guide. This book, written by Coopers & Lybrand is available as part of a subscription offer by Today's Computers at $39 the pair.

Documentation

Challenger comes with documentation from 2 different sources. First, the guides to operations (2) from Dick Smith (DSE) and second, the manuals from Perfect Software (3).

The first DSE manual is a guide to operations, particularly the System unit. The first four chapters cover hardware, powering up and the keyboard, all in 15 pages. Chapter 5 introduces the Basic program language in 73 pages.

Dick Smith's second manual covers the operations of the expansion unit. This includes three pages on the unit itself, including the disk drives and about 148 pages on the disk operating system.

This documentation could be more comprehensive, particularly for operation of the computer and the basic program section.

Manuals accompanying the *Perfect* software are very good. The *Perfect Calc* manual is comprehensive and instructional. It includes a good tutorial section which is supported by diskette models. *Perfect Writer* has particularly comprehensive documentation, although not quite as easy to understand as the Calc manual.

Support

Three levels of maintenance are available for the Challenger. On-site maintenance for customers located within 35km radius of Sydney, Melbourne, Adelaide, Brisbane and Perth will cost 8% of the total purchase price. There is also a 3-year extended warranty, where the customer returns the defective unit to the nearest DSE store. In capital cities, turnaround is 5 working days with other areas being a maximum of 10 days. Cost of this service is $540, which works out at $170 per annum.

Standard service is based on time and materials. It is the lowest priority of the 3 types of service. A minimum turnaround time cannot be guaranteed.

Compatibility

Today the success rate of any new PC introduced into the market equates with its compatibility with the IBM-PC. For a PC to run the MS/DOS operating system does not necessarily make it compatible. Many manufacturers claim IBM compatibility. The best test, however, is to try various software in the machine which is the ultimate compatibility test.

The Challenger performed very well in this area. In the 2 weeks we had it at Coopers & Lybrand it successfully ran business software. As this is a business review of the Challenger, only one game was tested. For the purists, *Flight Simulator* ran but did not operate in color, on the RGB color screen provided.

IBM-PC diagnostics software ran successfully for all peripherals other than the system units. This failure is most likely due to the absences of the IBM ROM chips. Our firm has rewritten the IBM communications software to enable the PC to act as an intelligent terminal to the Honeywell level 6 minicomputer range. We had no trouble running this software on the Challenger.

We were not able to run the CDEX training packages (training for the IBM-PC & *VisiCalc*) on the Challenger. This may have something to do with their needing the Challenger version of SET80 – which sets the screen from 40 to 80 column mode.

Overall the Challenger is as compatible as most purchasers would ever require. It performs better than a number of the so-called IBM-compatible transportable machines.

Conclusions

The Dick Smith Challenger is good value. A color graphics system with 128K memory and two disk drives for $2,990 represents extremely good value for money.

Richard Champion is microcomputer partner with Coopers & Lybrand, and co-author of the recently published book Microcomputer Software Buyers Guide.

Sanyo MBC 550 and 555

Sanyo Data Systems is out with its MBC 550 series microcomputer to supplement its MBC 1000 range. The 550 series has two main configurations: the MBC 550 with one disk drive and the MBC 555 with 2 drives. Both machines are well packaged, low-cost desk-top microcomputers which have the potential to go places.

How far will they go?

How compatible with the IBM-PC are the 550's?

We found the disk formats totally compatible, thus facilitating the exchange of data between the IBM and Sanyo machines. It is possible to run certain software (e.g. WordStar and dBASE II) on both machines without change.

However, the main advantage of IBM-PC compatibility is surely the wide range of software which should ultimately become available through normal distribution channels. It is therefore the software authors and distributors who will put the level of compatibility to the real test later.

Hardware

The MBC550 and 555 are identical machines except for the disk drives. The MBC 550 has one in-built 160K 5.25 inch disk drive, while the MBC 555 comes standard with two in-built 160K 5.25 inch disk drives. Both systems are

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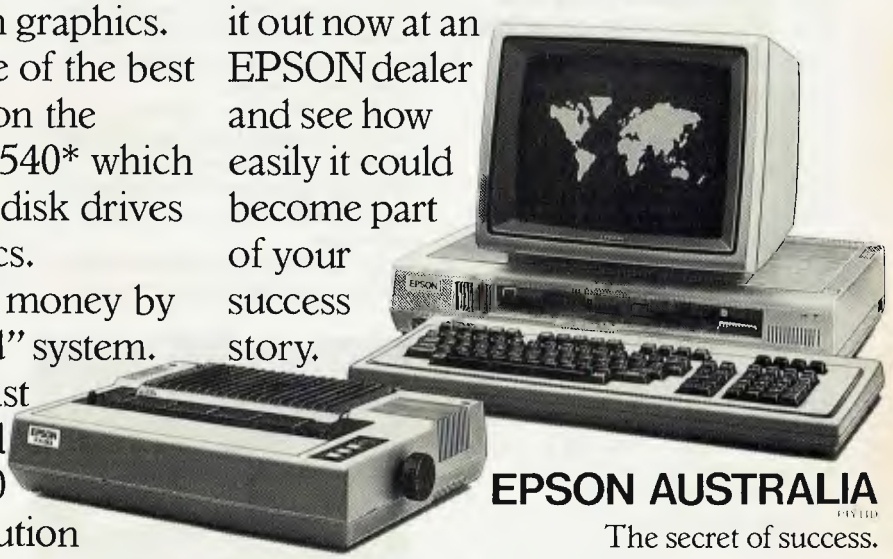

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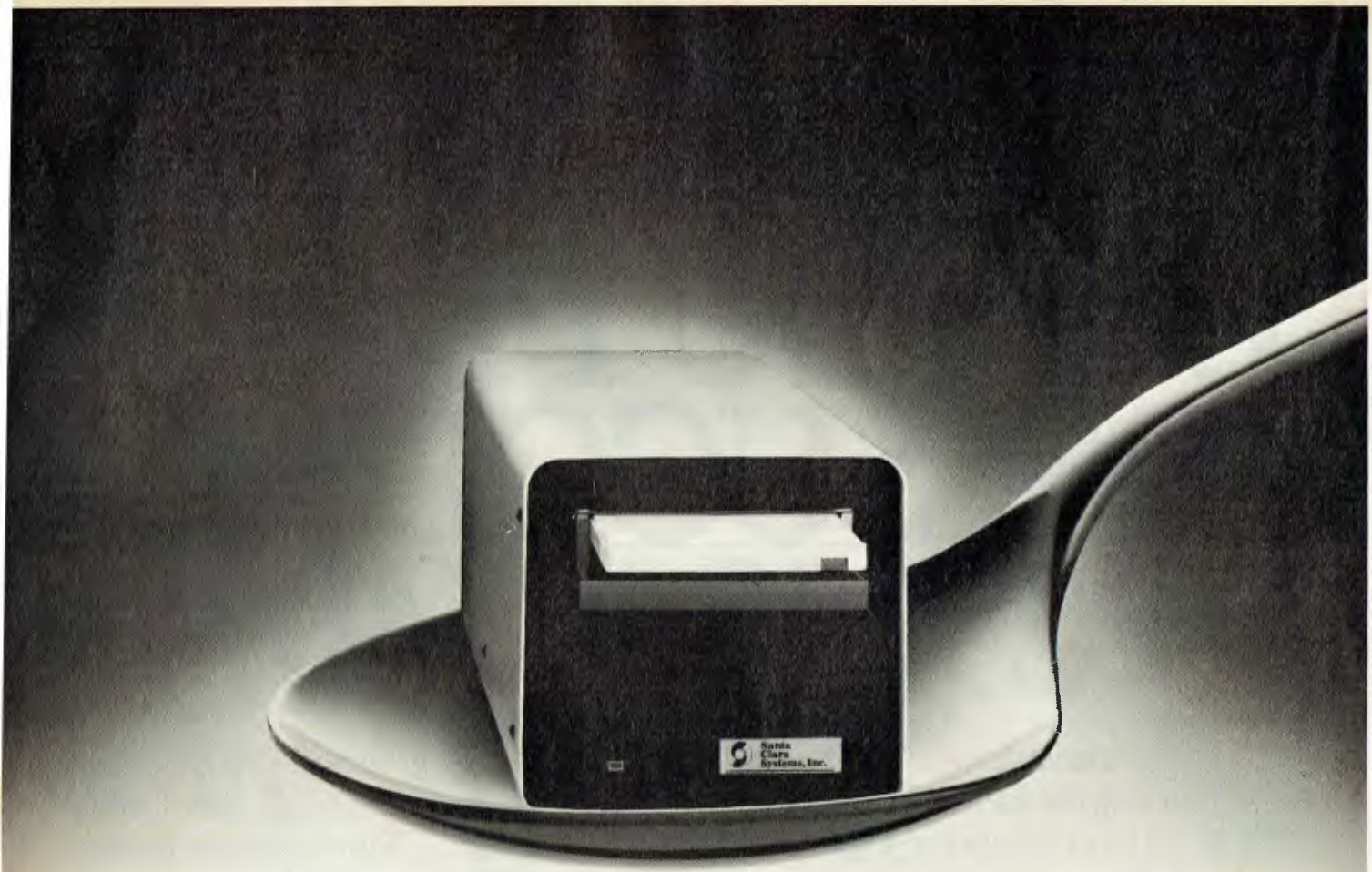

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built around an 8088 microprocessor with a standard 128K of RAM.

The RAM is upgradable to 256K by 8K plug-in chips. The disk drives also come as double-density double-sided, each with a capacity of 360K. They also have 48K of video RAM for 640 x 200 dot graphics.

The system unit, incorporating the disk drives, is compact and robust – obviously built for some hard use. Both the optional monitors fit neatly on top of the unit.

All plugs and connections are located at the rear of the unit and are appropriately labelled. The rear panel comes standard with plugs for color and monochrome screens (both can in fact be run at the same time), keyboard connection and parallel printer port.

The door of each disk drive is operated by a lever across the front of the drive and a light above each drive indicates which drive is being used. The drive light, however, stays on all the time instead of only when the drive is actually being used. At times, in saving to the disk, we were unsure whether the save had been completed and if it was safe to remove the diskette or not.

Fan and disk noise on the Sanyo were lower than that on the IBM-PC.

There is a third party hard disk available for approximately $4,000 but we have not yet tested it.

The 2 optional display screens offered by Sanyo are both 80 characters x 25 lines. The monochrome screen measures 11 inches diagonally, while the color screen measures 13 inches. Neither of these monitors has any tilt or swivel adjustment although it's possible that third party suppliers may be able to fill this gap.

Both the MBC 550 and MBC 555 come standard with 640 x 200 dot graphics, 8 x 8 character box, 6 x 7 character font and color. With the color screen, eight colors (including black and white) can be used. The colors and graphics were excellent and generated a lot of interest around the office.

The detached, tiltable keyboard offers the full ASCII character set, five keys providing 10 programmable functions, a numeric keypad with 5 directional keys and a graphics key.

We found the keyboard comfortable to use although our typist found the ENTER and SHIFT keys on the right-hand side of the keyboard to be too far away when her fingers were positioned on the home keys. She would also occasionally hit the CONTROL key whilst typing.

Good features are the recessed RESET key being intelligently placed out of the way on the left edge of the keyboard and lights in the LOCK and GRAPH key showing why they are on.

The only complaint we had was that the one metre flexible cord connecting the keyboard to the rear of the unit was too short.

There is a wide range of printers which may be connected to the Sanyo. Either the standard centronics compatible port or the optional RS232C serial interface may be used. The printer supplied with the test unit was a Microline 93 and performed admirably.

Our advice to those who intend using specific printers with this, or any other, micro is that you witness the printer and micro in operation together before placing an order.

Software

Both units come with the Sanyo implementation of MS/DOS version 2 and Sanyo BASIC. Sanyo BASIC is very similar to Microsoft BASIC, one of the most widely used versions of BASIC on microcomputers. The additional software supplied with our test unit was the MicroPro products of *WordStar* (word processing), *CalcStar* (spreadsheet), *MailMerge* (mailing lists), *SpellStar* (spelling checker), *DataStar* (data management), and *ReportStar (report generator)*.

Bundled versions are available for *WordStar* and *CalcStar*; *MailMerge* and *SpellStar* and all 6 products. These products have been the subject of a number of reviews and are generally highly rated. We tested them on an MBC 555, with 128K and 2 360K disk drives and rated the overall performance as being very good against what we had seen on comparable machines.

Sanyo advised that most of the software that runs under MS/DOS will run on the units (with the exception of graphics) and they claim there are at least 100 locally supported products readily available. Unfortunately, we were not able to test this to any great degree.

Most of our own software, which was acquired for an IBM-PC, required more memory than was provided on the test unit. Two of the IBM-PC products which met the memory constraint were Microsoft's *Multiplan* Aston Tate's *dBase II*.

We could not get our version of *Multiplan* to operate but we had no trouble with dBase II. Sanyo has since confirmed that Microsoft has adapted *Multiplan* to operate on the MBC 550 and 555. For *dBase II* we developed a bench test which involved a series of numerical calculations, writing 1,000 records to a file, indexing that file and finding and deleting a number of records.

On our IBM-PC with 320K memory and two 360K disk drives this test took 11 minutes and 33 seconds. On the Sanyo test unit with the same disk configuration and 128K of memory it took 12 minutes and 15 seconds – only 6% longer.

The documentation accompanying the test unit and the software was some of the best we had seen. The operator's guide is clear and concise and written with the novice in mind. The first chapter on getting started includes details on the components, how to connect the peripherals, the operation of the system and the important aspects of formatting and copying disks. There is also a section showing how to add more memory and install a second disk drive. Similarly, comprehensive and well written manuals were provided for Sanyo BASIC, MS/DOS and the MicroPro products.

One of the most significant disadvantages is the lack of expandability. Memory is currently limited to 256K which is adequate for most applications but can be too small for large spreadsheets. There is no internal expansion bus except for the 8087 slot.

The Sanyo machines are an excellent choice for those seeking a low-end IBM-PC compatible personal computer. Price has to be one of their strongest features.

Ralph Molloy is manager, IS/EDP, Arthur Young Services and David Goldberg is consultant, IS/EDP, Arthur Young Services.

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Scamps For Schools

If any aspect of modern education retains the tall-stool-and-quill administrative image it is the School Library. But progress is about to change all that with the advent of specialised educational library software compatible with standard school PCs.

Tillie Eakin dreams of selling her educational library software to all of Australia's three thousand high schools. She works an 80-hour week trying to make her dream come true.

The software, called *Scamps*, is published by Eakin's Lothlorien Company. It frees school librarians from the usually boring work of circulation, cataloguing, worrying about overdue books, searching, setting up reading lists and tabulating new acquisitions, she says.

The average school library, Eakin asserts, can have from 6,000 to 30,000 books. Most schools also have at least one Apple computer – and her software runs on Apple.

"Libraries are developing more into useful and dynamic information centres for schools, the core of a lot more student research," Eakin said. "Libraries simply cannot upgrade properly in a manual fashion; they must use computers."

A Scamps system costs between $4,000 and $6,500, depending on configuration. A hard disk, to cope with the considerable storage needed, is essential – floppy 5¼ inch discs won't do. Buyers also need an Apple. Support comes through communication lines linked up from Eakin's office-cum home in the Sydney suburb of Randwick to the various sites.

Eakin, I would think, is not untypical of the growing band of software developers and marketeers emerging in Australia, particularly in the education field. There will be a lot more Eakins around, not all of whom will be successes.

SCAMPS, incidentally, means Software Integrated Micro-Computer Library System. Sorry about that.

The message, I guess is that though more and more software will be developed in Australia authors will have a hard time securing initial financing. Some packages will make it. Eakin is almost there.

After 4 years, Lothlorien is breaking even, Eakin claims, and a dozen installations are up and going. An earlier venture into software for agriculture is over, its lessons learnt.

Users of *Scamps* include Prince Alfred College (Adelaide), Scots College (Sydney), Sydney College of the Arts, Norwood Regional Library (Adelaide), etc. In late July, *Scamps* was reviewed by the prestigious Victorian Association for Library Automation (VALA).

Scamps, incidentally, means Software Integrated Micro-Computer Library System. Sorry about that.

Six woman years have gone into developing *Scamps* and today 3 people are involved full-time at Lothlorien. One year's support is included in the *Scamps* price.

Born at Nambucca Heads in NSW, Eakin is an attractive 43-year-old mother of 2 teenage kids. She does not work through the night in a garage. At work she is not surrounded by herds of teckweenies belting away on screens amid rotting Big Macs. Sorry, Apple and Microsoft.

In the late 1970s she worked at the University of NSW and got involved with a lot of university people hacking away on their personal computers. "I got the bug, but wanted to develop something that would be useful to big numbers of people and would make commercial sense eventually," she explains.

She needed a loan of $10,000 to start up, after a friend helped her raise $40,000. Three banks promptly knocked back requests for a loan.

Eakin and her friend managed to borrow the $10,000 off other friends. (No, there were no government subsidies.) This has been paid back since, and banks are now lending money to Lothlorien (about $70,000).

Scamps today is recognized, still reluctantly by some, as a genuine, useful local software package.

In the next 12 months Eakin hopes to sell 100 units. But it's still a regular 70 to 80 hour a week slog co-ordinating ongoing development and marketing.

"You need to do some hustling and you need a thick skin," Eakin says.

Is there any other way of making it?

Rainbow 100. Its see 12 months

Digital Equipment Corporation, Chatswood Plaza, Railway Street, Chatswood, NSW, 2067. I'd like to see the Rainbow 100 in action. Please send me details of my nearest Authorized Digital Dealer.

Name _____ Address _____ Postcode _____ Phone _____

monitor lets you into the future instead of only 6.

There's no crystal ball involved, just very advanced technology. Which is why the monitor of Digital's Rainbow 100 personal computer is so remarkable. Because it has the capability to let you view 132 columns at once – as well as the standard 80 columns found on most personal computers.

In practical terms this means that you can study a full 12 months' figures in a spreadsheet program at the same time, (with an 80-column display, only 6 months' figures are immediately viewable). When working with variables that can affect your business over a whole year, the greater flexibility of the Rainbow 100 can make an important difference.

There are many other advantages to be found throughout the Rainbow 100 system. Like the superbly designed keyboard; very logically set out and very slim in profile. So you can type while your wrists are actually resting on the desktop. Or, if you prefer, just sit back and rest the keyboard on your lap. Either way it's very easy to work with.

However, the most outstanding feature of the Rainbow 100 is its astonishing versatility. Because the Rainbow 100 can run either the latest 16-bit programs or hundreds of the well-tried and tested 8-bit programs that have been the industry standard for years.

Digital's customer assistance and back-up is rather outstanding, too. When you purchase a Rainbow 100, you have access to the Digital Helpline which can assist you with most 'familiarization' problems informally over the phone. Whilst perhaps best of all for the new purchaser, is Digital's unique warranty which covers you for 12 months at your own premises.*

Remember, when you buy a Rainbow 100, you're acquiring a personal computer with virtually unlimited potential. It is not restricted solely to 'stand alone' use. It also has the capability to talk to other personal computers and mainframes. And when in the future you hopefully expand, your Rainbow 100 will expand with you. Right up to a total office network with worldwide communications abilities. Phone the toll-free number (008) 226446. If you're in the Sydney metropolitan area phone 412 5590. Or send in the coupon for details of your nearest Authorized Digital Dealer. And monitor the capabilities of the Rainbow 100 for yourself.

digital™

So easy to work with.

*Within 50 kms radius of a Digital Service Centre Y&R/Coudrey DIG 2006

Pity Librarians Who Fall Behind

The old image of libraries as staid, stagnant places is being shattered by increasing application of new technology. This represents a challenge to librarians.

Any library that still allocates staff to indexing published journals or newspapers must be seriously considering the cost-effectiveness of such a luxury. So much data is now available on-line that to index the same material on a one-off basis becomes a cost that management cannot ignore.

Progressive businesses concede that well-organized, timely information is a costly commodity. Poorly-organized information is even more expensive and it doesn't take long for management to add up the costs associated with the library.

The librarian waiting for management to take the initiative in upgrading library facilities has a limited future. It could well be that the EDP section is forming a new corporate information centre. Computer buffs have not only assumed the information role in many corporations, but have also stolen the word library. The onus is on librarians to make sure their jobs are not stolen as well.

Unfortunately, the computer industry has done a good job of convincing management that a terminal on every desk is the ultimate answer to all information needs. Many executives have a vision of themselves sitting at a desk doing their own DIALOG and Ausinet searches, accessing the library's holdings, the company files, and getting full text answers to their many questions.

The librarian is faced with the task of explaining the role of the intermediary, which shouldn't be too difficult when the vagaries of search strategy, computer languages, and location of the full text are explained.

Automating the catalogue is not necessarily a desirable expense for a small library with a card catalogue that functions well, a centralized client base and a low growth rate. For libraries coping with rapid growth, distributed users, branch libraries or staff and storage problems, it becomes a cost-effective measure worth considering.

It won't bring any short-term savings in dollars and cents, but the benefits of freeing library staff from clerical tasks for more effective professional service are considerable.

Many corporate libraries are committed to using software that has already been purchased for another application. If the librarian happens to be given access to full text retrieval software on a mainframe, and ample support from the EDP section in systems design and programming, automating the catalogue is a breeze.

Alas, it doesn't happen too often.

There is, however, an increasing trend towards allowing the librarian to manage the library resources on a micro dedicated to library use and this is a real plus. Not only does the librarian in charge have authority over scheduling tasks such as data input and printout of reports, but a number of other tasks can be handled on the same equipment.

Good database management software packages such as MDBSIII, FMS80, dBase II, and pre-programmed library software such as MICROCAIRS-C offer the potential to produce good catalogues and also take care of many other requirements.

It is not possible to offer an evaluation of software packages available in this limited space, as each judgment begs another question, but some of the points to consider when choosing are:

What is the file size?

What are the direct costs, hidden costs, implementation costs?

Is multi-user use envisaged?

Will there be good programming support if the package is not pre-programmed?

Will it handle journal control, purchasing & internal control, SDI service, thesaurus assistance, records management?

Does it need to handle any of these features?

Is there local market support for the software?

Librarians know their users, began working with highly structured systems long before computers were invented. Content knowledge and service are still the most marketable assets a librarian has. It is up to librarians to make sure that these are appreciated.

Annette Murphy is a director of Triad Information Management (NSW) Pty Ltd.

Compatible with your environment.

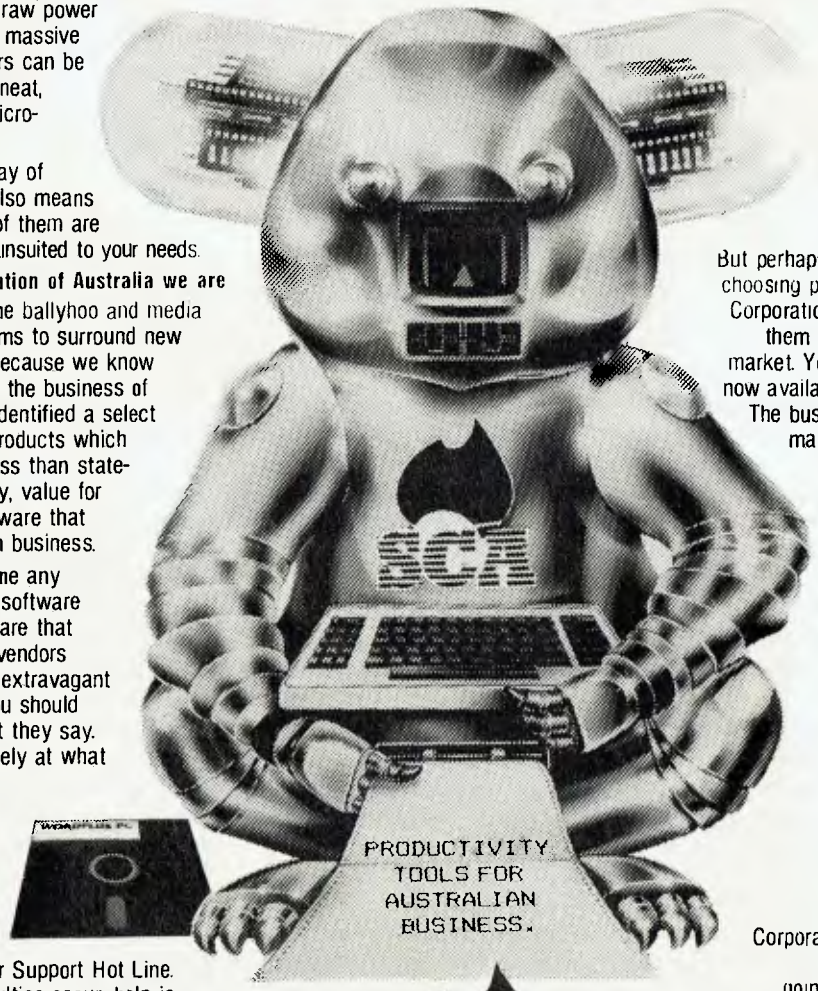
In case you hadn't noticed it, there is a revolution going on. Computer hardware is getting more and more similar: compatibility has seen to that. But software is growing increasingly diverse and distinctive. And the raw power which used to drive massive mainframe computers can be packaged into very neat, small bundles for micro-computers.

But the growing array of software products also means that vast numbers of them are going to be entirely unsuited to your needs.

At Software Corporation of Australia we are unimpressed with the ballyhoo and media hype that often seems to surround new software marvels. Because we know business as well as the business of software, we have identified a select group of software products which represent nothing less than state-of-the-art technology, value for money . . . and software that works for Australian business.

Now if you have done any investigation of the software market you'll be aware that there are plenty of vendors making all kinds of extravagant claims. We think you should look closely at what they say. And even more closely at what they don't.

For example, user support. As a registered user of an SCA product, you will have access to our acclaimed Customer Support Hot Line. So that when difficulties occur, help is never far away. And we will also mail SCA Software User Notes to keep you in touch with what other people are doing with software like yours. And to let you know when upgrades become available. And when an upgrade becomes available, we'll make it available to you at a fair price. You may be surprised at how rare that kind of support can be.



And user training: we have applied our skills in that field to our successful and growing SCA Institute. Not every product needs intensive user training, of course. But you'll be pleased to know that we can provide it at a professional level.

Technical support: even if you never need it, we make sure that when your dealer buys products from us, he can rely on our skilled tech staff. And with the growing sophistication of available products, that's a big issue.

But perhaps the most important reason for choosing products distributed by Software Corporation of Australia is that we select them very carefully for the Australian market. You see, many software products now available just don't work in Australia. The business assumptions under which many of them operate simply don't apply here. Others come with documentation that defies comprehension. Or – worst of all – some are just murder to learn. Our products have to meet the rigorous selection criteria of our Software Evaluation Team. So that before we put our name on the box, we make absolutely sure that we can support the product – and that it is worth supporting.

Support. That's an important concept in a go-go market. And that's why it is important for you to look at the name behind the name. At Software Corporation of Australia, we know that long after the show is over, it's going to be support that makes the difference.

SCA

Software Corporation of Australia Pty. Ltd.

449 Swanston Street, Melbourne, Victoria 3000. Telephone: (03) 347 7011.
Suite 501, 203 New South Head Road, Edgecliff NSW 2027.
Telephone: (02) 328 7074. Telex: AA 30625 ME 1293.

AN EXCLUSIVE GUIDE

SOFTWARE LOCATOR

An update guide to new in-stock listings of business and educational software in Australia, managed by Gary Ross.

Software Locator this month again has the answers to the question of what are the most important new releases in Australia, from developers, manufacturers and distributors.

It represents easy access for users and dealers looking for software which will help them.

As we go to Press, undoubtedly the biggest news is the new integrated packages clash, with major distributors Arcom Pacific supplying *Framework* and Imagineering with its *Symphony*. Arcom is also out with *Concurrent PC/DOS* with windows, from US manufacturer Digital Research.

Framework and *Symphony* were the major thrust at a recent big Melbourne trade fair. Lotus joined the aggressive Imagineering operation with some big sales targets for Australia developed by Imagineering's peripatetic Jody Rich.

In the US, *Symphony* has beaten *Framework* in first deliveries. *Framework*, however, looks very exciting and could become for word-oriented managers what *Lotus 1-2-3* has been for number-crunching executives. A big seller.

Framework's biggest plus is that its electronic desktop doesn't emulate the manual paper shuffling that takes place on its predecessor. *Framework* provides the power to organize pieces of information, whether notes on different topics, spreadsheets, graphs or data bases, into an outline, just like the ones you created at school.

Framework also sets itself apart from most integrated software with an ability to assume very specific shapes without distorting its familiar face. Arcom Pacific's Martin Lack will no doubt exploit this.

Symphony, the first new product development from Lotus Development Corporation's *Lotus 1-2-3*, is an integrated software package which includes 5 applications. They are spreadsheeting, word processing, database management, graphics and communications.

These applications, as Imagineering's Phil Woolley points out, are joined together in a number of ways through a windowing system, common command structures and a common language. This makes it possible to move data among applications, or to include references to data found in one application within another.

Meantime, there are a lot of other important new packages out there, so suppliers and distributors, please write to us so we can keep users up to date.

And readers, if what you are after isn't here, call us. It could well be that we can help you very quickly get what you want.

Prices are all recommended retail, with sales tax included. Skill level is estimated in this way – if it takes more than a few hours to grasp the idea, then it's intermediate. If it's novice, that means almost anyone can get into it immediately. If it requires specialized computer training, then it's technical.

If you want to list your software in the Locator, *please send them in the format* you see here. This is essential! Write the address, and the names of the products, in lower case. Do go into some detail about your product, especially how it differs from other similar products.

Try to write a jargon-free description if possible. When it comes to requirements, specify what is needed in RAM, and the variations for each operating system you list, if you can. If it comes with a tutor disk and a hotline service, say so. Say something about the mass storage if it is appropriate.

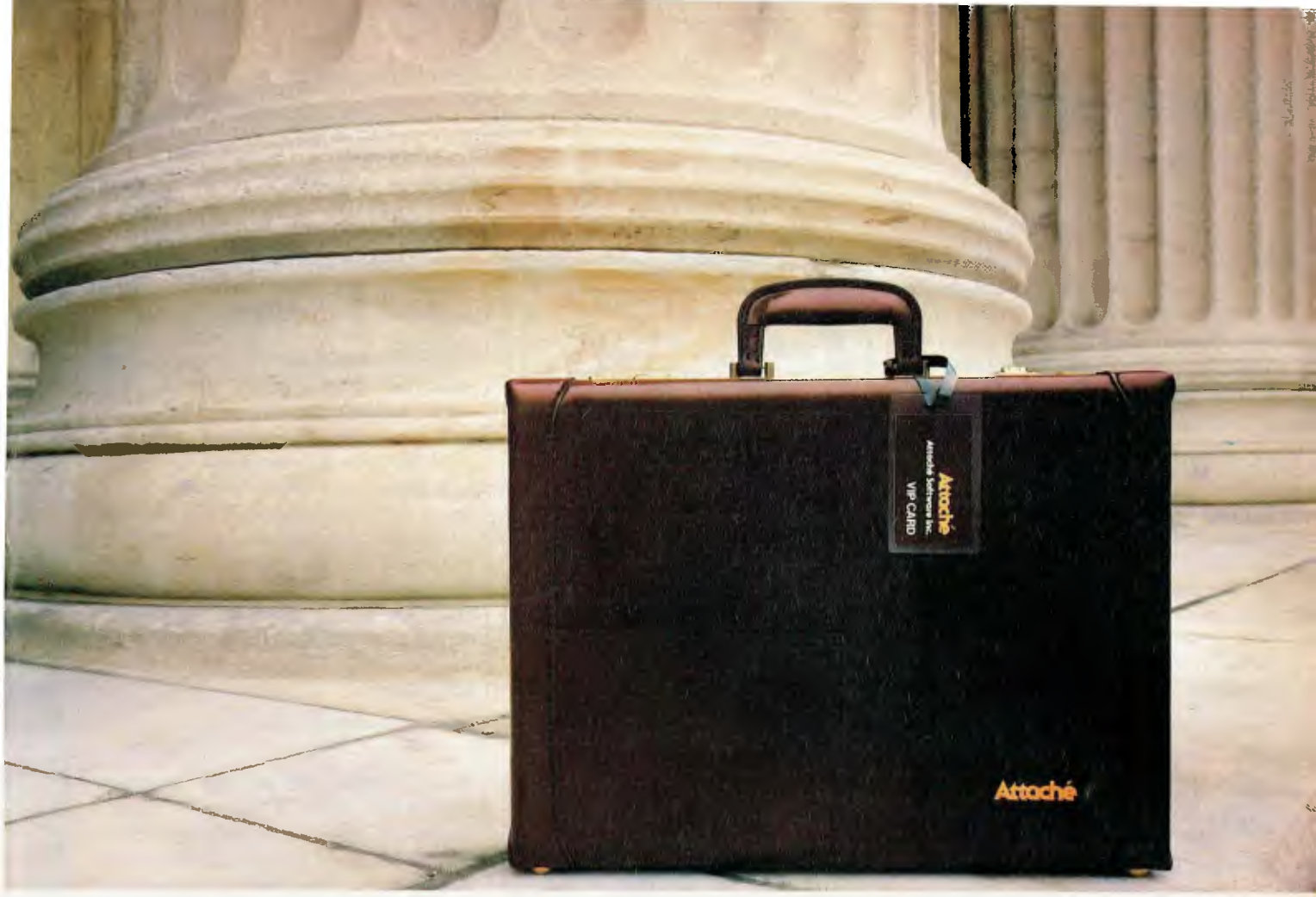
Do make an effort to write specifically: Number of cells, number of words in dictionary, numbers of fields over which it will sort. Please send your listings, questions, and suggestions for improvements to Software Locator, Today's Computers, Box 506, GPO, Sydney. Mail deadline for our October issue is August 20.

– Ken McGregor

Integrated products

THE INCREDIBLE JACK
Imagineering
579 Harris St
Ultimo, NSW 2007
(02) 212 1411

The Incredible Jack offers word processing, database, basic calc analysis and the ability to print mailout labels. The word processor is simple to use, with features like: word wrap; right and left



Presenting a marvellous case for packing-up all your accounting software cares and woes.

Attache Accounting Software has been flawlessly designed to provide you with effective financial solutions.

Thoroughly Tested

Developed for small to large companies, Attache Accounting Software has been extensively tested in the United States and Australia and is acknowledged to be bullet-proof. Yet, for all its power and versatility, it is easy to install and easy to use.

Programmed For Growth

Amazingly flexible, it is sensibly designed with "turn-on/turn off" options to help meet your company's expanding needs.

Attache modules can be purchased separately or as an integrated system. Modules include: Accounts Receivable,

Invoicing/Sales Analysis, Inventory, Accounts Payable, General Ledger, and Payroll.

Software To Go

Everything you require to run your accounting system is packaged inside our attractive Attache Case.

CPA Support

Recognised by leading microcomputer manufacturers as the ultimate in accounting software, Attache has also earned the recommendation and support of major CPA firms.

End User Training

"Hands-on" instruction is available from a nationwide network of community colleges.

For more information contact your nearest Attache Software Dealer or Attache direct, 10th Floor, 8 West Street, North Sydney, NSW, 2060. Phone (02) 929 8700.

Attaché

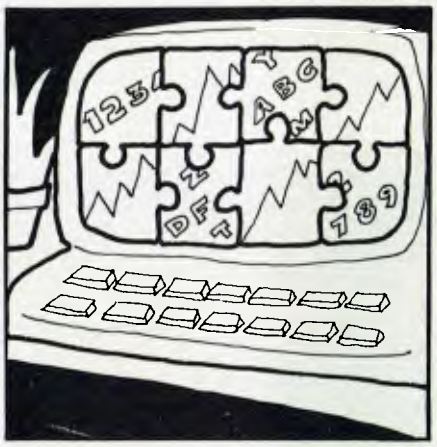
Attaché Software Australia Pty Ltd

Accounting software that carries you far into the future.

AS16

hand margin settings; and the file size is only limited by the disk space available. The calc analysis allows you to enter formulae using named areas, which enables the user to perform calculations. Requirements: Apple II, IIe. Skill: Novice. Price: $280.

FRAMEWORK
Arcom Pacific
PO Box 13
Clayfield, Qld 4011
(07) 52 9522
Framework from Ashton-Tate works the way people do. All of *Framework's* functions are available at the same time. Word processing, spreadsheets, graphics, database, communications



and DOS access – each a superior product in its own right. The functions run in frames; you can have as many on-screen as you wish. The frames can be organized together in any way which suits your task. *Framework* has one common command set. A very powerful outline processor allows you to pour out your thoughts at random and then organize them into a logical heirarchy using words, numbers or graphs. The frames editor is a very sophisticated applications writer for those who wish to use it. Requirements: IBM-PC, PC-XT and all compatibles. 256K RAM and dual 360kb floppy disk drives with mono-chrome display. Skill: Novice to experienced. Price: $795.

File management

THE SENSIBLE SOLUTION
Fletcher DP Services
320 St Kilda Rd
St. Kilda, Vic, 3182
(03) 537 2811

The Sensible Solution is designed to be an easy to use yet powerful relational data base system. Claimed to be more powerful than *dbase II*, the program prompts the user for necessary information as aplications are designed, then creates a compiled program at the end for speedy execution. Features include automatic screen and data file creation, the ability to work with up to 10 files simultaneously, interactive data entry and file updating, multi-index data file management, the ability to handle programs and data up to 8MB in size and file and record locking for multi-user systems. Requirements: 48K memory and minimum 300K disk storage. CP/M, MP, MS/DOS, DPC/OS and others. Skill: Intermediate. Price: Single user $740, Multi-user $995.

KRUN
Data Base Management Services
(DBMS)
PO Box 62
Middle Brighton, VIC 3186
(03) 523 5947

KRUN is a comprehensive system for software developers, allowing the developer to sell *KNOWLEDGEMAN* applications to end users, without the end user having to purchase a copy of *KNOWLEDGEMAN*. *KRUN* enables the users to then run applications, without having access to standard *KNOWLEDGEMAN* commands and variables. All procedures are encrypted to protect the investment of the author – not even the standard *KNOWLEDGEMAN* system can be used to read *KRUN'S* encrypted procedures. Requirements: *Knowledgeman*. Skill: Intermediate. Price $243. Min of 3 run-time modules.

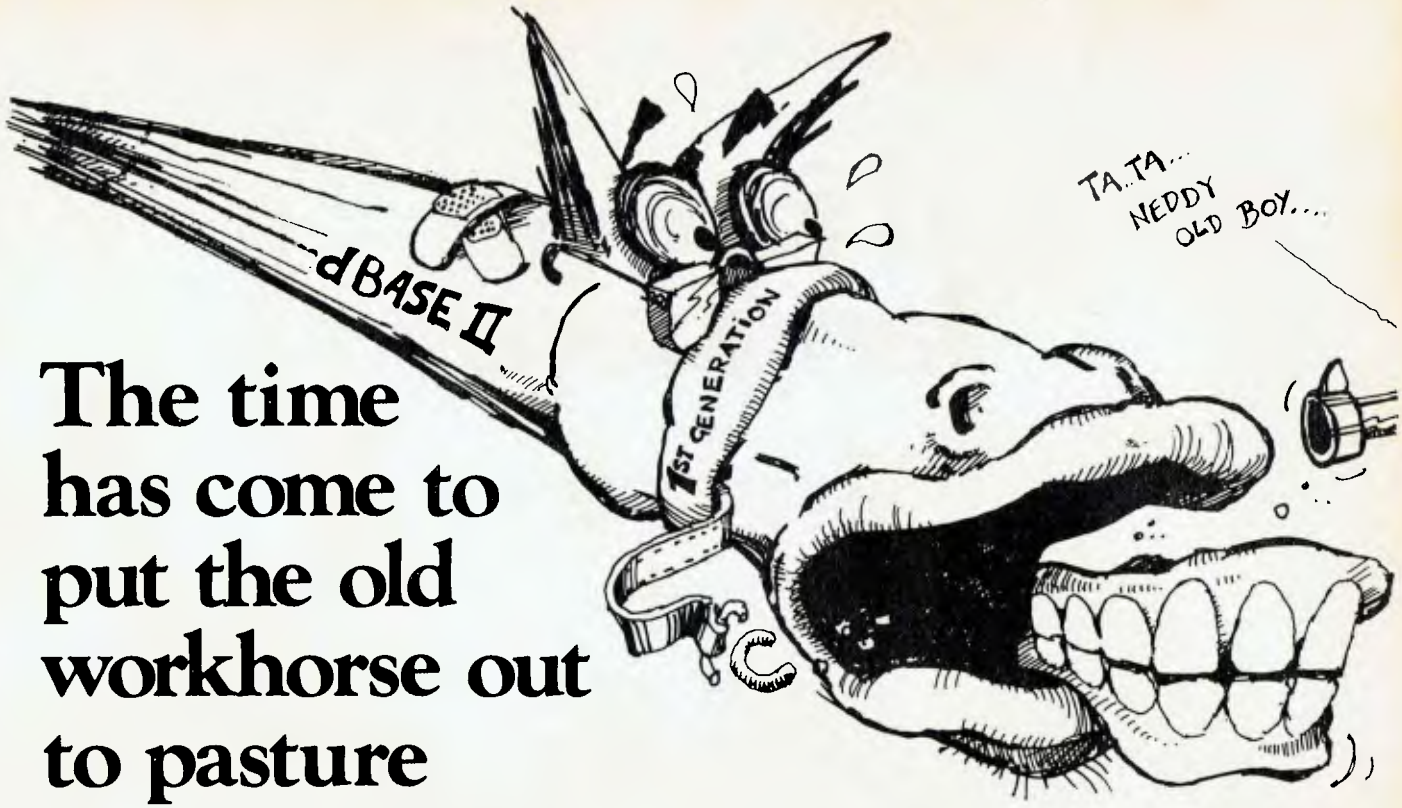
dBASE III
Arcom Pacific
PO Box 13
Clayfield, Qld 4011
(07) 52 9522
dBASE III from Ashton-Tate allows individuals to enter, manipulate and retrieve large volumes of data and develop customized application programs to put the data to work. Features include storage capabilities of over 2 billion records per file and 128 fields per record, the ability to use 10 database files simultaneously, and an English-like command and programming language. The system also provides ultra-fast sorting and indexing of stored data, colour display and user interactive features such as a command assistance mode that guides the first-time user a set of "pull-down" menus and prompts. Requirements: IBM-PC or PC-XT and all compatibles under PCDOS 2.0. Minimum of 256K RAM and 2 floppy disk drives or 1 floppy and 1 fixed. Skill: Intermediate. Price: $795.

Spreadsheets

VISICALC ADVANCED FOR APPLE II
Imagineering
579 Harris St
Ultimo, NSW 2007
(02) 212 1411

The Visicalc Advanced program with its keystroke memory features makes it easier to achieve multisheet consolidation and totalling worksheets into a concise presentation report for management use. The *Visicalc Advanced* program protects any areas of work you don't want changed. It also provides help on screen with the "?" key to assist users in completing their work. Requirements: Apple II. Skill: Intermediate. Price: $495.

MICRO/FCS
Computer Accounting Services
73 Parramatta Road
Camperdown, NSW 2050
(02) 517 0111
Micro FCS is a financial modelling system that shares common commands



The time has come to put the old workhorse out to pasture

The days when dBASEII* stood all by itself at the apex of the database management pyramid are past. The old workhorse has been put out to pasture by a new breed of faster, easier, more powerful packages.

It's not that the old horse hasn't done its job: it has, gloriously. Those of you using dBASEII know that it has paid for itself many times over. In its time it was dBest. And now there's no denying that it's slow, it's cumbersome, it's difficult to live with — when you compare it with some of the newcomers on the market.

Fresh out of the starting gate.

So who are the newcomers that have usurped the old master's position?

Delta:

We regard it as the most complete user-oriented database system on the market today and for the forseeable future. Delta caught our attention when it received the UK government's prestigious RITA award for "best software of its kind", followed closely by IBM UK's adopting it as their own distributed product for the IBM PC. Everything we have learned about it since working with it here has served only to increase our enthusiasm. Delta has so much to offer — and you don't have to be a programmer to get it all.

Dataflex:

Dataflex is a true multi-file, multi-user database management system. "Flex" offers you unlimited flexibility in the development of high quality, easy to use database applications – in a minimum of time. "Flex" is for software developers everywhere, as well as for users with complex applications.

Take some advice from experienced punters.

"Dataflex . . . truly the best application development tool on the market today. Its power and flexibility have enabled us to write a total package in less than 50% of the time compared to conventional methods."

Tim Lamberton, M Sc. software consultant to Occidental Life.

"Dataflex allows the developer to devote his energies to good systems design because the nitty gritty of screen, file and report routines are superbly handled by Dataflex. The end user has the knowledge that his system can be easily modified and further enhanced."

Jeff Hooper Talon Systems

Place your bet on a winner.

Delta and Dataflex are available at leading computer stores everywhere. Ring your local dealer and ask for a demo. If he doesn't know about the product you're interested in, ring us. Or better yet, have your dealer ring us. It's time he got on the inside track.

Delta and Dataflex distributed in Australia by

Intelligence (AUST. PTY. LTD.)

Sydney: 4th Floor, 204 Clarence Street, Sydney, NSW 2000. Phone (02) 267 1711. Telex: MNC AA25026.
Melbourne: Suite 303, 620 St Kilda Rd., Sth Melbourne Vic 3004. Phone: (03) 51 1406 Telex: AA39219.
Brisbane: (07) 343 9122 **Perth:** (09) 322 1677

*copyright Ashton-Tate.

d foreign language.

2 or 3

```
.list files
   DATABASE  FILES  NORECDS  LAST UPDATE
    HOMES    DBF     1005     11/01/83
.use homes
.list homes selling for <50000
*** SYNTAX ERROR *** RE-ENTER
.list structure
   FLD   NAME      TYPE   WIDTH   DEC
   001   ADDRESS   C      025
   002   SELLPRICE N      009     002
   003   AGENT     C      025
.list for sellprice<50000
```

R language.

Gimme those turkeys.

Let's suppose you want a list of every home under $50,000.

Say "Gimme those turkeys" to any other database management system and all you'll get is a blank stare from the screen.

But once you tell R:base that "turkeys" mean "homes under $50,000," and that "gimme" means "list," you don't have to tell it again.

That's because R:base has the industry's only plain-and-simple conversation option for microcomputers. An artificial intelligence system that actually learns from you as you go along.

Which means no more difficult programming routines just to get a piece of information. Or lines and lines of code for a routine operation. All R:base asks for is some good conversation.

But there's a lot more to R:base than just friendliness.

See for yourself. Visit your local Imagineering IBM PC microcomputer dealer now or call Imagineering for the name of your nearest outlet.

IMAGINEERING™
"The Art of Software"
579 Harris Street, Ultimo N.S.W.
Telephone: (02) 212 1411

R:base
It's easy when you do it R way.

with the mainframe version. It will run on the CAS Timesharing Service. FCS lets managers forecast, develop budgets, test scenarios and incorporate facts and financial details in graphic or tabular form. A manager can use FCS on the PC, get backup from the CAS Timesharing, and then go off-line and ask "What-if" questions. Requirements: 192K, MS/DOS. Skills: Intermediate. Price: $2,500.

Word processing

SPELLSTAR
Imagineering
579 Harris St
Ultimo, NSW 2007
(02) 212 1411

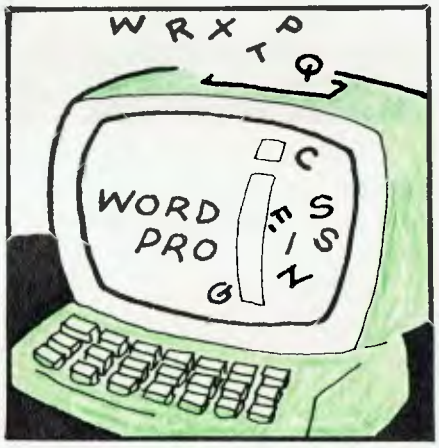
Spellstar is the spelling checker from MicroPro which runs with the popular *Wordstar* word processing program. *Spellstar* can be called directly from the *Wordstar* no file menu and allows users to create customised supplementary dictionaries. It also flags all misspellings and typos in a *Wordstar* document and provides a number of useful statistics concerning the document being checked. Requirements: *Wordstar*. Skill: Novice. Price: $160.

SPERRYLINK SPELLING CHECKER
Sperry Computer Systems
100 Miller St
North Sydney, NSW 2060
(02) 929 7800

The *Sperrylink Spelling Checker* goes through your document and checks your spelling against its own dictionary. It marks all words it does not recoginize and offers possible corrections. Sperry says it has a dictionary of about 25,000 words to which the user can add his own. Requirements: Model 30 or Model 40 Sperrylink desk station or any CP/M 86 computer. Skill: Novice. Price: $179.

VISIWORD PLUS (TI PC)
Imagineering
579 Harris St
Ultimo, NSW 2007
(02) 212 1411

Visiword Plus for the Texas Instruments TI PC combines a word processor and a spelling checker. It uses no control characters and the screen shows exactly what the printed document will look like. The screen can be split in two and users can work with two documents at once and transfer parts of a document between one and the other. The program includes a 100,000 word dictionary



with the spelling checker and the program will suggest alternate spellings. *Visiword* also allows users to work directly with files created by *Visicalc 4* and *Visifile*. Requirements: TI PC or IBM PC/XT with 128K (DOS 1.1) or 192K (DOS 2.0). Skill: Novice: Price: $633.

EASY SCRIPT 64
Commodore Business Machines
5 Orion Rd
Lane Cove, NSW 2066
(02) 427 4888

Easy Script lets users change display colors, and store standard paragraphs for use in letters. It gives search and replace, and automatic page numbering. You may insert or delete characters, lines, block, sentences. Sound effects prompts are optional. Up to 240 characters per line may be printed, depending on the printer limits. Function key editing is possible, and superscripts and subscripts are possible with some printers. Users may view/scroll 764 lines, and 240 columns. Requirements: Commodore 64. Skill: Novice. Price: $100.

EASY SPELL 64
Commodore Business Machines
5 Orion Rd
Lane Cove, NSW 2066
(02) 427 4888

This addition to the *EasyScript* word processing package for the Commodore 64 adds a 30,000-word spelling checker facility. 20,000 words are in the dictionary, the user may add an extra 10,000. Requirements: Commodore 64. Skill: Novice. Price: $80.

STARINDEX
Imagineering
579 Harris St
Ultimo, NSW 2007
(02) 212 2411

Preparing an index for a long document or book is a painstaking task that most writers would prefer to avoid. *StarIndex* takes care of this and will work with any version of *Wordstar*. Among its many features *StarIndex* will create an alphabetised index with sub-entries, create a table of contents with up to 4 levels of emphasis, adjust page numbers as you insert or delete text, create lists of tables and figures and number them in the main body of the text, number paragraphs, sections and appendices and insert blank pages to make every chapter begin on a right hand page. Requirements: Wordstar. Skill: Novice. Price: $295.

WPS-80
Logo Management
100 Miller St
North Sydney NSW 2060
(02) 929 8508
The *WPS-80* word processor uses special keys and features unique to DEC personal computers to reduce keystrokes and enhance performance. It is keystroke compatible with the dedicated *WPS-8* word processing system running on the Decmate II, DECword and WORD II. *WPS-80* eliminates the need to memorize complex keystroke commands. A set of color-coded keyfront labels is included. Other features include a full screen editor, 10 cut and paste areas, HELP command, "Oops" key to retrieve deleted text, extra wide text, proportional spacing, ragged and justified margins intermixed within a document and footnoting. Requirements: 128K, DEC Rainbow or 64K Decmate, CP/M-80. Skill: Novice. Price: $473.

Job specific: Accounting

MACACCOUNTING
JBA Micro
8 Help St
Chatswood, NSW 2067
(02) 411 1144

Developed by Peachtree Software, this is the first accounting package to be released for the increasingly popular Apple Macintosh. It is a computerized visual equivalent of the traditional manual book keeping system and consists of two modules, a cashbook called MacCash and a sales/purchase ledger system called (you guessed it) MacLedger. Features of MacCash include bank reconciliation, a complete transaction audit trail and the ability to analyze nett amounts over multiple columns. MacLedger allows aging over 3 periods, handles invoices, payments, credit notes and adjustments for each ledger and a wide range of reports including an index of accounts and daybook listings selectable by transaction type, period or date range and page number. It is claimed that the system can be learned by an inexperienced user in 30 minutes. Requirements: Macintosh computer. Skill: Novice. Price: MacCash $275, MacLedger $385.

Job specific: Medical

BOMBS
Basic Oriented Medical Business System
MAI Australia
20 Clarke St
Crows Nest, NSW 2065
(02) 438 1455

MAI claims *Bombs* is the result of 12 years of development. It comprises a series of modules – covering both finance and medical needs – which can be bought and added to the system as required, allowing the user to develop the system he needs without having to pay for software that is not required. Finance modules include: instant billing, statements, printing Medicare forms, general ledger and accounts payable. Medical modules include: medical history, lab and X-Ray results, medication profile and printed medical database management. MAI also offer training at the customer's premises. Requirements: MAI S/10, BBM operating system, 128K. Skill: Novice. Price: $5,000+

ABBOTT DENTAL SYSTEM
Webster Computers
PO Box 295
Bayswater, Vic, 3153
(03) 72 9844

A 20% cash flow improvement is a claimed benefit of the Abbott dental management system. It has facilities for instantaneous billing, unprompted production of regular reminder notices and fast monthly statements printing. Patient records include tooth charts, and histories. Payroll and financial forecasting are included. A "pay by instalment plan" for long-term patients calculates instalments, and raises invoices, and provides monthly statements. Requirements: Webster Spectrum Computer, 256KB and 30MB with speed-enchanced LSI-11/23 processor. TSX-plus operating system. Skill: Novice. Price: $20,000 (includes hardware), for single-user system. Above configuration supports 4 terminals.

THE MEDICAL SYSTEM
Microware System Consultants
428 Toorak Rd
Toorak, Vic 3142
(03) 241 4798

The Medical System is designed to cater for single or multi-doctor practices and gives an up to date record of patient history at any given time. Daily operations include receipts (bulk billing and cash journal), itemised accounts, receipts listing, charges, banking reconciliation, letters, history and inquiries. Eight types of reports are provided for. Requirements: Hard disk or IBM floppy disk, PC/DOS, MS/DOS 2.0, CP/M 86, MP/M (128K memory), CP/M 80 (64K). Skill: Novice. Price: $3,000 (single user).

MEDIBILL FOR COMMODORE 64
ComputerLoad
3 Smail St
Broadway, NSW 2007
(02) 211 1522
Medibill was written in consultation with doctors, specialists and the Royal College of General Practitioners. It caters for up to 18 practitioners with up to 65,000 patients. Features include listing outstanding debtors, end of the day book balancing, bank reconciliation, and end of the month statements. It can also produce an end of the day summary of the doctor's activities including a list of patients seen and the results of the consultations. Requirements: Commodore 64. Skills: Novice. Price $9,000 for 3,000-patient practice, single doctor. Six doctor, 15,000-patient practice, $12,500. Seven doctors and up to 50,000 patients, $19,500. Prices include hardware.

Job specific: Retail

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LNP 119

THE HOSPITALITY SYSTEM
FCM Systems
24 York St
South Melbourne, Vic 3205
(03) 690 5693

This hotel industry system combines with up to 30 DTS Model 555 cash registers to provide full control over the alcohol sales of a hotel. The system gives liquor stock control, bottle shop reports, bar accounting, payroll management and profit and loss. Requirements: CP/M 86, Concurrent CP/M, MS/DOS 2.0, RS232 interface, 128K memory, 2 disk drives or hard disk. Skill: Novice. Price: $20,000 min inc hardware and training.

VIDEO MINDER
CustomSoft Developments
PO Box 184
Wahroonga, NSW 2076
(02) 449 5388
VideoMinder is a professional single or multi-user video library management system designed to run on any computer with the TurboDOS-80 operating system. Features include support for up to 9 different types of membership or casual categories and up to 9 different types of tapes, an automatic pricing mechanism, comprehensive management reporting, including tape and member profitability listings, tight overdue control and reporting, extremely high speed (transactions completed in under 5 seconds) keeping track of all tape stock, distinguishing between ordinary tapes, rental tapes, new releases and 'specials' and calculating prices accordingly. The multi-user version allows several users to use the system at the same time. Requirements: TurboDOS-80. Skill: Intermediate. Price: $1,200 (single user) $1,500 (multi-user).

Education

TIC TAC SHOW
Any Commodore dealer, or The Commodore Information Centre (mail order only)
5 Orion St
Lane Cove, NSW 2066
(02) 427 4888

A combination of an educational quiz game and the old naughts and crosses, *TIC TAC SHOW* can be used with one or 2 children. Quizzes range from maths to myths and new ones can be added at will. Subject disks are also available. This program is suitable for children from 4 to 9. Requirements: Commodore 64 with disk drive. Skill: Novice. Price: $55, subject disks $25.

SPEED READER II
Any Commodore dealer, or The Commodore Information Centre (mail order only)
5 Orion St
Lane Cove, NSW, 2066
(02) 427 4888

Now you can teach yourself speed reading with the help of your Commodore 64. The program comprises 6 courses with 34 choices of reading material. It claims to improve the actual reading process by increasing eye span and smoothing out eye movements. The course includes charted speed assesments as well as comprehension tests. Additional data disks of reading mate-

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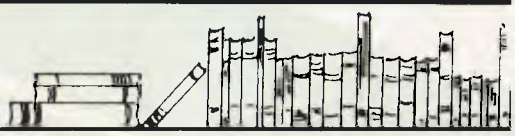


rial are available and the course is claimed to be suitable for everyone from 6 years of age to adults. Requirements: Commodore 64. Skill: Novice. Price: $89.

Disk operating systems

CONCURRENT CP/M 86 FOR SIRIUS
Barson Computers
335 Johnston St
Abbotsford, Vic 3067
(03) 419 3033

Sirius users can now have multi-user, multi-tasking and windowing capabilities with *Concurrent CP/M 86*. Two additional screens may be connected to the Sirius with all able to access the same files. Any one of 8 different programs may be on-screen while others continue to run, so all 8 may be viewed at the same time. All 3 screens may access the same files, programs and peripheral devices. File integrity is maintained with multi-user record and file locking. It will support up to 16 disc drives of 512 MB each, and the full 896K memory capacity of the Sirius. Requirements: 256K RAM. Skill: Novice. Price: P.O.A.

IMPORT!
Logo Management
100 Miller St
North Sydney NSW 2060
(02) 929 8508
IMPORT! is a disk-to-disk file transfer software utility which eliminates the need for modems, serial transfers, and additional hardware. A 10K file can be transferred in less than 15 seconds. *IMPORT!* currently reads and copies CP/M and MS/DOS files to a formatted Rainbow disk from over 25 different disk formats. Currently available for the DEC Rainbow under CP/M-86/80, an MS/DOS version will be available soon. Fully menu-driven with on-line help screens, *IMPORT!* has many convenient and time-saving features. It displays available space on the destination disk, enables switch of source/destination disk drives, ASCII and Binary files (in hex dump format) are displayed. Selective "tagging" of files to be transferred, and use of cursor-function-arrow keys are possible. Requirements: minimum 64K memory, 2 disc drives. Skill: Novice. Price: $239.

XENO-COPY PLUS
Logo Management
100 Miller St
North Sydney, NSW 2060
(02) 929 8508
Xeno-Copy PLUS is claimed to be the only utility currently available under MS/PC DOS that transfers files between different operating systems. More than 40 different disk formats, including CP/M, TRS-DOS, TurboDOS and others are currently supported. The program reads 47 disk formats and writes 41 disk formats. Distributors promise that additional formats will be added and cumulative updates made available for a nominal charge. Requirements: 128K memory, 2 disk drives, PC/DOS or MS/DOS. Skills: Novice. Price: $279.

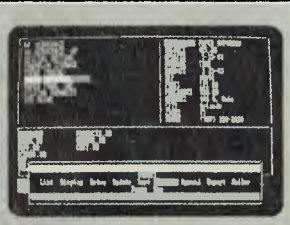
XENO-DISK PRODUCTION SYSTEM
Logo Management
100 Miller St
North Sydney, NSW 2060
(02) 929 8508
Xeno-DISK is an inexpensive solution to the problems of software conversion and distribution among different disk formats. *Xeno-DISK* will READ, WRITE, FORMAT and DUPLICATE nearly 60 different types of 5-¼" double-density disk formats without additional hardware. 80-track formats are also supported with appropriate disk drives. *Xeno-DISK* is claimed to be the only disk mastering and production system running under PC-DOS/MS-DOS. Each of the modules is fully menu-driven. Disk formats currently supported include most popular CP/M computers plus CP/M-86, TRDOS1.3, p-SYSTEM, NECDOS and European formats. Direct disk format parameter input allows use of 40 and 80-track CP/M formats not currently available on the menu. Optional utilities include 80MATE CP/M-80. Emulator ($179.00) which simulates a CP/M 2.2 environment under PC/DOS or MS/DOS, and the 80TERM Terminal Emulator ($89.00). These additional programs accurately simulate a complete CP/M 2.2 environment under MS/DOS, and allow the software developer to run CP/M software before using *Xeno-DISK* to prepare distribution diskettes. Requirements: MS/DOS-PC/DOS 2.0 or later. 128K RAM plus 2 disk drives. Skill: Intermediate. Price: $749.

CONCURRENT PCDOS
Arcom Pacific,
PO Box 13
Clayfield, Qld 4011
(07) 52 9522
Concurrent PCDOS with windows from Digital Research lets an IBM-PC run up to 4 PCDOS or CP/M application programs simultaneously. It features easy-to-use menus. A communications capability lets users work on one application while the system receives information from a remote station. Windows can be positioned anywhere on the screen, scrolled or sized to display the most important parts of each application. Several advanced productivity tools are included, a Printer Spooler to queue documents and Rolodex to sort and search lists. *Concurrent PCDOS* includes complete documentation. Requirements: IBM-PC or PC-compatible system with 256K RAM and 2 floppy-disk drives, although 512K and a hard disk are recommended for maximum efficiency. Skill: Novice. Price: TBA.

STARLINK
Arcom Pacific
PO Box 13
Clayfield, Qld 4011
(07) 52 9522
StarLink from Digital Research enables your IBM-PC or IBM-compatible computer to drive 4 more workstations. These may be remote dumb terminals or other micro computers. Each terminal is able to function as if it's the only termin-

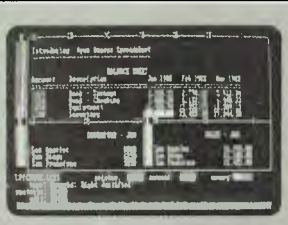
OPEN ACCESS™ Reads, Writes and does Arithmetic. It Paints in 3-D, Keeps Your Appointments and Talks to the World.

1



INFORMATION MANAGEMENT—THE MASTERMIND. This advanced data-base manager stores and retrieves multiple files quickly, easily and reliably. What's more, it shares all information with the other programs, so you never have to re-enter the same data twice.

2



ELECTRONIC SPREADSHEET—NUMBER CRUNCHING AND GOAL SEEKING. It helps you produce forecasts, cost estimates and "break-even" points—in seconds, instead of hours or days. Best of all, it allows "goal seeking." Ask, for example, "What sales must I have the rest of the year to net $1 million?," and OPEN ACCESS will figure it out!

3

3-D GRAPHICS—NOT JUST PRETTY PICTURES. These graphics distill raw data into trends that can be instantly visualized, helping you discern the important facts from a wealth of information.

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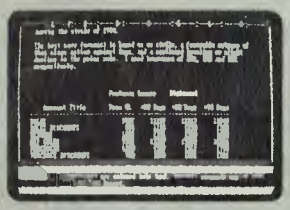

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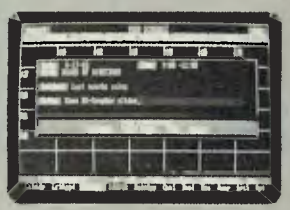
5

TELECOMMUNICATIONS—YOUR LINK WITH THE WORLD. This program gives you access to virtually any other computer system in the world. Not only can you transmit and receive reports from your colleagues, you can also subscribe to special data banks that know everything from GM's stock price to the relative humidity in Genoa. Now that's power!

6



TIME MANAGEMENT—CONSERVING YOUR MOST PRECIOUS RESOURCE. This module helps you keep track of all your appointments, hour by hour, day in and day out. It alerts you to standing obligations, automatically coordinates meeting times with other busy professionals, and lists all your associates on a Rolodex™-like file.

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Hardware Requirements:
- 192K RAM
- Two DS/DD Floppy Disk Drives
  - OR 1 DS/DD Floppy Disk and Hard Disk
- Graphics Card and Color Monitor (Optional)
  - (Required for Graphics Only)
- Requires PC/MS-DOS 2.0

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P.O. Box 1231, North Sydney 2060.

AS

al attached to the computer. The system consists of a 4-channel communications processor board that plugs directly into your IBM-PC or compatible computer. Also provided are multi-user utilities and software, and four serial RS232 ports. StarLink's operating system is Concurrent PCDOS, a multi-tasking system that allows you to use CP/M-86 and PC DOS applications at the same time, without having to reload software. Requirements: IBM/PC or PC-XTT and most compatibles. A minimum of 512K RAM and a hard disk recommended. Skill: Novice. Price: T.B.A.

Languages

FORTH 64
Any Commodore dealer, or The Commodore Information Centre (mail order only)
5 Orion St
Lane Cove, NSW 2066
(02) 427 4888

Variously described as a Rubik's Cube of a language and a religion, this unusual language is now available on cartridge for the Commodore 64. *FORTH* 64 includes a text editor, a macro assembler and a compiler. *FORTH* allows interactive structured programming, virtual memory (which permits large programs), and the ability to write all or part of a program in assembly language. Requirements: Commodore 64. Skill: Intermediate. Price: $80.

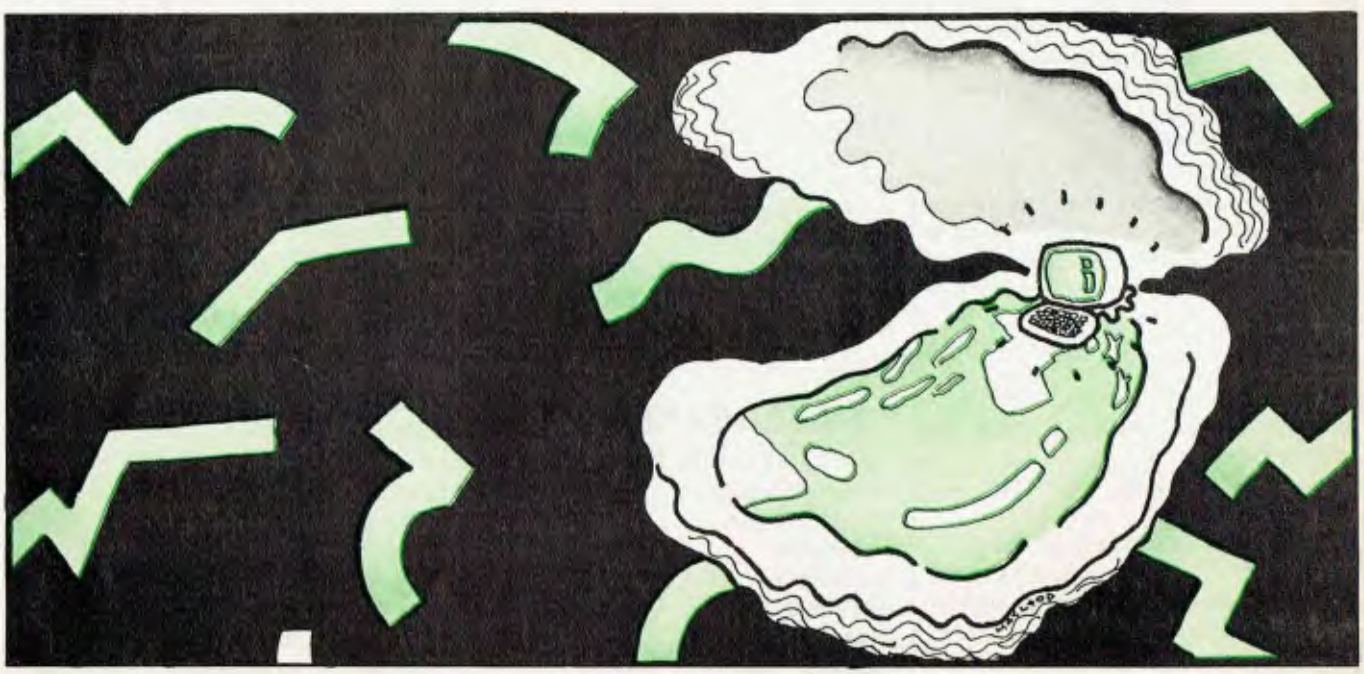
LOGO
Any Commodore dealer, or The Commodore Information Centre.

5 Orion St
Lane Cove, NSW 2066
(02) 427 4888

Originally made popular as a children's learning language by the Apple II, *LOGO* is now available for the popular Commodore 64. *LOGO* is a procedural language which allows programmers to break programs down into smaller, separate procedures. The Commodore version has been designed to take advantage of the machine's sprite graphics and sound synthesis. The language is claimed to be usable by children from high school level to adults. Requirements: Commodore 64, 1541 disk drive. Skill: Novice. Price: $100.

PILOT
Any Commodore dealer, or The Commodore Information Centre (mail order only)
5 Orion St
Lane Cove, NSW 2066
(02) 427 4888

PILOT stands for Programmed Inquiry, Learning Or Teaching and it is a language specifically designed for creating computer teaching aids. It has also proven ideal for teaching young children, especially word games and poetry generators. The language has simple commands and can handle large amounts of text. Requirements: Commodore 64, 1514 disk drive, Vic-Switch if used in classroom configuration. Skill: Novice. Price: $60.



YOUR GUIDE TO LANs

What are the major local area networks (LANs) available in Australia? Who sells and supports them and what do they cost? Peter Vernon concludes the summary he began in our August issue.

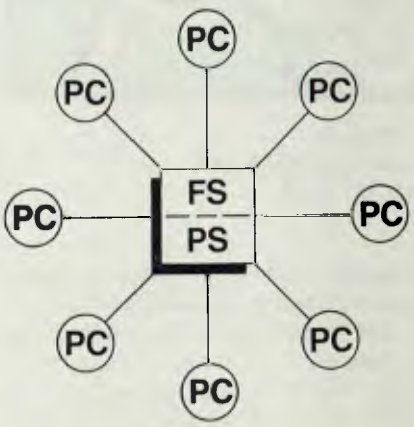
INTERLAN NET/PLUS
Network Solutions Australia
88 Christie St
St Leonards, NSW 2065
(02) 438 3579
Type: CSMA/CD
Topology: Bus

Net/Plus is a complete Ethernet product line which allows products from several manufacturers to be linked together. It is currently available for VAX, PDP-11, Nova, Eclipse and Multibus computers and implements the complete Ethernet 802.3 specification. Data transmission rates using coaxial cable are up to 10M bps.

Networking software for the system is written in the C language and follows the Xerox Network Systems protocols. Packages are available for Unix, VAX/VMS and RSX-II operating systems and IBM, Apple II and DEC PCs. Terminal emulation and file transfer capabilities are provided to allow users to log on to other computers in the network and freely transfer files throughout the network.

EagleNet
Asia/Pacific Technology Marketing
200 Pacific Hwy
Crows Nest NSW 2065
(02) 929 7699
Type: Arcnet – licenced from Nestar.

Available for the Eagle Spirit and PC series and the IBM-PC. Using coaxial cable, Eaglenet specifications are comparable to those of the Nestar PLAN 2000 system.



STAR

Connection cost: Software support includes EagleMail, included free of charge with the EagleNet 1 "starter pack", which provides two EagleLink 1 adapter boards, one cable junction and network software called FlexMenu for $3,390. Additional EagleLink adapter boards are $1,180 each.

BROADBAND NETWORK SYSTEMS

WangNet/Fastlan
Wang Computer
51 Berry St
North Sydney, NSW 2060
(02) 436 3477
Type: Broadband.
Topology: Bus.

WangNet is a broadband local area network which provides 5 communications channels for Wang computer systems, peripherals, video signals and communications with mainframe computers from other vendors.

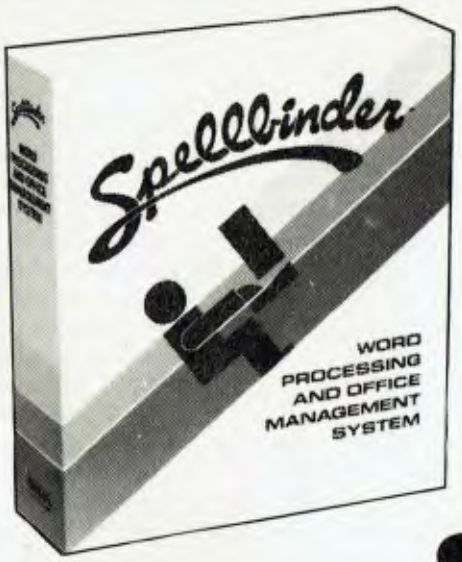
Fastlan is a low-cost starter version which does not require the lengthy installation process of the larger WangNet. The use of high-frequency coaxial cable transmission previously meant that all WangNet installations had to be tailored to precise specifications which vary from site to site.

Fastlan is intended for the Wang PC and allows connection over a radius of 90 metres from repeater amplifiers. Configurations are available which allow from 4 to 640 workstations to be networked, and with additional amplifier units, total network length can range up to several kilometres.

Connection costs: Fastlan requires 3 modules – Fastlan-A, the radio frequency amplifier $1,610; Fastlan-B, a network branch and two coupler boxes $570; Fastlan-C, cable with four port outlet $200; An optional enclosure for the RF amplifier is $1,040.

3M Videodata LAN/1
3M Australia
69 Ridge St
Gordon, NSW 2072
(02) 498 9333
Type: Broadband token passing.
Topology: Bus.

Interactive Systems/3M LAN/1 uses a broadband transmission scheme over coaxial cable, with data rates of up to 18.2M bps. Since it operates at frequen-



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SPELLBINDER

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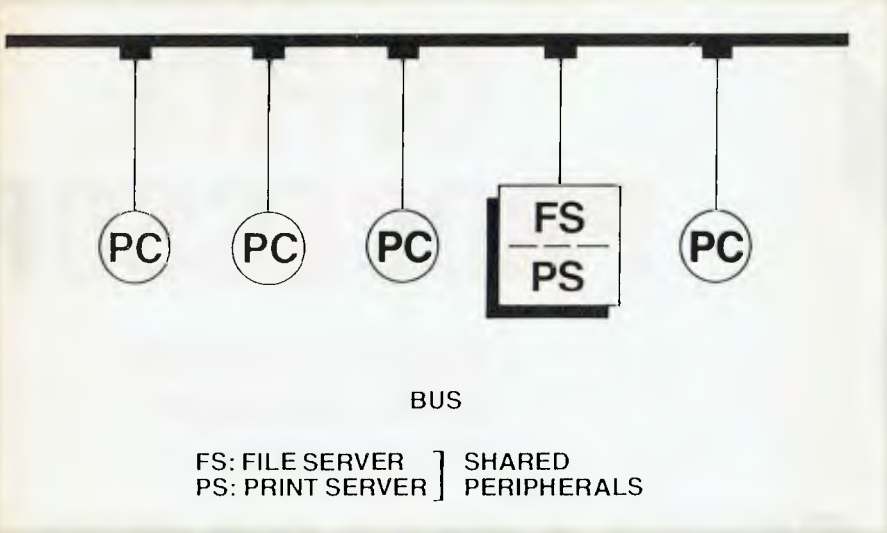


cies comparable to television transmissions, many channels can be transmitted on the same cable, each in its own frequency band, and transmission distances can be longer (up to 11km with additional signal boosters). LAN/1 provides 5 data channels, sufficient for up to 10,000 separate devices.

According to the manufacturer, no special software is required to interface to the network as all communication appears to the workstation user as high-speed serial transfers.

Connection costs: Because broadband networks have precise requirements as to signal strength and cable routing, each installation is unique and no price can be specified. A detailed engineering study of particular user needs and solution is available for a "nominal" cost from 3M.

PROPRIETARY SYSTEMS

Applebus
Apple Computer
37 Waterloo Rd
North Ryde NSW 2065
(02) 888 5888

AppleBus will be available later this year for all Apple computers, although the hardware interface is already built into every Apple Macintosh and Lisa 2 computer. The system will allow users to connect up to 32 Apple computers as workstations in a bus configuration over a total distance of around 300 metres, with a data transfer rate of 230K bps.

Also available will be an Apple Cluster controller to allow an Apple network to communicate with mainframe computers.

Connection costs: Worldwide release planned October, including Australia, no details yet.

GED Centinet
General Electronic Developments
396 Victoria Rd
Gladesville, NSW 2111
(02) 816 2211

Type: Proprietary frequency modulation scheme. **Topology:** Centralized Star.

GED Centinet is a local area network for the Australian-designed and built General Electronic Developments workstation. It uses a central master processor which provides access to shared disk drives and printers by sequentially checking each workstation for central service requests. The standard system is provided with a 34MB fixed disk and runs the TurboDOS, an enhanced form of the 8-bit CP/M operating system.

Each workstation has its own 64K of memory and floppy or fixed disk storage facilities and communicates with the master processor over a separate three core cable (as used by Telecom).

Connection costs: Basic workstations are $5,820 each, with additional 1.2MB floppy disk drives at $1,225. Price for fixed disk storage depends on the size provided and ranges from $3,850 to $31,500.

DMG/NET
Network Computer Software
6 Cunningham St
Sydney, NSW 2000
(02) 211 2322

DMG/NET for Digital Equipment Corporation minicomputers, Micro II and DEC Professional 350 computers allows more than one computer to be accessed from the same terminal and can co-exist with the larger timesharing DEC/NET. Using Austpac, Datel leased lines, Digital Data Service or an in-house cabling, DMG/NET software allows remote computers to be selected by namean automatically dialled up. No hardware additions are required to the workstations, and no changes are made to standard DEC RSTS/E operating system.

Cost of the software package is around $3,000.

Sourceware
4/73 Albert Ave
Chatswood, NSW 2067
(02) 411 5711

Sourceware distributes a variety of networking software and communications support packages, including the AST PC-Net (see under separate heading), the On-Line Software Omnilink and Omnimicro programs and the Irma micro-to-mainframe communications adapter for the IBM-PC.

Omnilink is a group of software packages for mainframe computers which support communication with IBM-PCs. The mainframe running Omnilink forms the hub of a network system which allows electronic mail and word processor document exchange between IBM and Wang machines. IBM type 3270 terminals, personal computers, word processors, printers and other devices which emulate 3270 terminals can be networked.

Irma is a "decision support interface", a card which can be attached to an IBM 3278 communications controller and which communicates with remote terminals and PCs via an RS-232C serial link. Communications from the controller to an IBM mainframe use either SNA/SDLC or BSC protocols.

Connection costs:

HARDWARE

Eracom
6/26 Greg Chappel Drive
Burleigh Heads, Qld 4220
(075) 56 0911

Eracom manufactures the locally-developed ERA-3007 secure communications controller, a dedicated processor which provides data encryption and decryption facilities, data multiplexing and protocol conversion functions.

The controller is built around a 16-bit Intel microprocessor and has its own 128K of on-board memory and a high-speed cipher processor for encoding data transmissions. The processor is controlled by the MICOS operating system which provides diagnostic tests and communications management capabilities. Each processor enables up to eight external communications channels to be controlled, one or more of which is normally connected as trunk lines to a computer network.

Connection costs: ERA-3007 costs from $1,900 to $10,000, depending on applications.

Scitec
83 York St
Sydney, NSW 2000
(02) 29 6981
(008) 02 2223

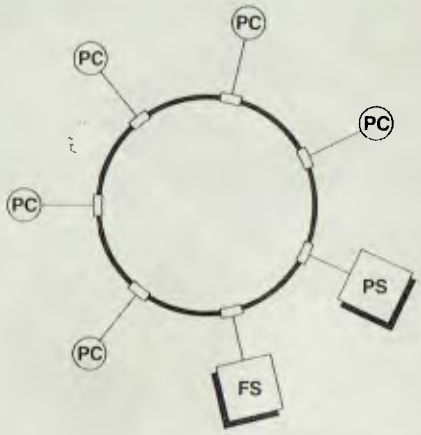
Scitec, an Australian company, manufactures an advanced range of communications controllers, multiplexers, modems and X.25 packet switching controllers for use with DDS, Datel, Austpac, private networks and local area networks.

High speed multiplexers are available with up to 128 channels and data rates of 2M bps. Interfaces to microwave relays, satellite ground station transmitters and digital voice output devices are also available.

Connection costs: Multiplexes range from $3,000 to $25,000.

NetComm (Australasia)
8/33 Ryde Rd
Pymble, NSW 2073
(02) 498 5577

NetComm manufactures a range of communications interfaces for the Apple II and Apple III computers. These plug-in cards incorporate IBM 2780/3780 BSC-3 communications and asynchronous RS-232C communications interfaces which enable the Apple to communicate with any mainframe, minicomputers or other microcomputer using these protocols. The cards have been tested with IBM, Prime, Amdahl, Wang, Facom, Natsemi, Univac and ICL mainframe host computers.



RING

Switched networks, dial-up communications and direct connection data transmissions are supported at speeds from 110 to 9600 bps and any Apple file type can be transmitted, either by using the Apple in a terminal emulation mode or making it appear to the mainframe as a line printer or card reader, so no additional software is required at the host computer.

Connection costs: Ring Tim Kitto on (02) 4985577.

Datacraft (Aust)
PO Box 353
Croydon, Vic 3136
(03) 726 9911

Datacraft distribute a wide range of communications support devices, cables, modems and multiplexers and the Micom Micro600 data channel selector, a "data PABX".

The Micro600 demonstrates the advantages of centralized message switching and monitoring. It is able to provide the network manager with complete control over computer access and terminal-to-terminal communications. Access to certain computer connections can be restricted to a specified group of terminals while other connections can be simplified to single-key commands from the user's keyboard.

Tymnet, also available from Datacraft, is a private network based on a packet switching concept. Protocols are translated by network controllers to allow network users to access host computers using various communications formats.

An electronic mail facility called OnTyme II is currently available to allow network users to create and edit messages for transmission to other network users, either individually or by selected groups.

Connection costs: Tymnet, Microbee and Ontyme II are usually integrated in one package. An average system size cost is $1500 to $50,000.

AWA Computers Division
132 Arthur St
North Sydney NSW 2060
(02) 922 3300

AWA developed and manufactures the "Quest" range of networking products and distributes the "Pick" minicomputer operating system. The Quest communications processor and networking system enables computers using the Pick operating system to communicate with each other as well as IBM and a wide range of other mainframe computers. Cash registers, hand-held data terminals, bar code readers and laboratory equipment can also be networked.

Connection costs: Quest costs $5,000 for distributed databases on AWA Pick units. Pick rents at $250 mo for reality computers and $350 mo for sequel computers.

PABXs

At first sight, PABXs (Private Automatic Branch Exchanges) can seem to be the ideal solution to the problems of connecting computers together. The advantages of using existing wiring to transmit data as well as voice are obvious, and the star topology of most PABX networks does provide a ready-made means of monitoring and controlling network operation.

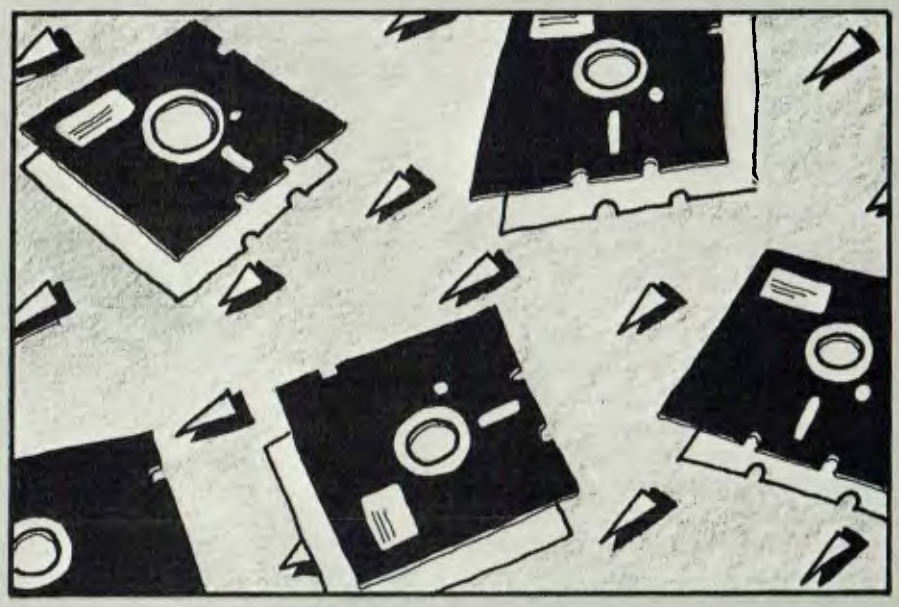
There are 2 points which prospective customers must keep in mind, however:

- Telephone cables and exchanges can only provide limited data transmission speeds, suitable for electronic mail but not the high-speed data transfers from mass storage devices or heavy network traffic.
- Many combined voice and data PABXs require a 3-pair cable rather than existing 2-pair cable used for voice-only

telephone connections. In such cases existing wiring must be replaced anyway and the cost advantages are nullified.

Nevertheless, combined voice/data internal exchanges are a rapidly developing technology, particularly in the United States where the breakup of the Bell telephone network has freed the company to provide terminals and data communications equipment directly to end users. IBM's purchase of a stake in PBX manufacturer Rolm will also have important implications for the direction IBM takes in data communications.

Rolm's CBX (Computerised Business Communications System) can handle up to 10,000 voice and data connections simultaneously. AT&T Information Systems' System 85 can provide 1,500 connections, the smaller System 75 supports up to 400 connections, consisting of 200 workstations and 200 trunk lines in any combination. Prices range from $US900 to $US9,000 per line, depending on the number of lines and the variety of devices used.



In Australia, Plessey, Philips, Ericsson and AWA advertise data PABXs, although combined voice and data exchanges are just beginning to appear on the market.

Peter Vernon is a freelance technical writer and journalist based in Sydney.

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Macintosh

Queensland Tends To Think Big

Queensland is a State of contrasts and none more dramatic than its attraction to small business and interest in advanced electronic techniques for information transfer. There are worse places to be a micro computer salesman, as Pam Robson reports.

Queensland: to some it may mean little more than bananas, beaches and Bjelke-Petersen, but to the computer industry the Sunshine State represents a potentially high-growth market for the microcomputer and small business computer. Why? Here's three good reasons.

In Queensland, a large and decentralized State, many companies have traditionally depended on day-to-day exchange of information with branch offices, often sited in remote areas.

Secondly: according to figures released recently by the Queensland Government, more and more small businesses are being attracted north with the result that with only 16 per cent of Australia's population, Queensland accounts for over a third of Australia's small business ventures.

Lastly the newly-created Queensland Department of Industry, Small Business and Technology, has developed an incentive scheme to attract both small businesses and high-technology companies and has formulated a definite policy of encouraging industry in general to make full use of today's technology.

Both the small business and the branch office lend themselves readily to the microcomputer.

Already many companies have become aware of the potential market with the result that many computer system retailers are well established both in Brisbane and in provincial towns.

The best of these have based their retail organizations on experience gained in software development or importation and can provide their clients with sound after-sales support from computer professionals and business advisers already employed in other areas of the company.

Competron, for instance, has a sister company which is the Australian master distributor for a number of the largest American software houses, while QCOM established a fine reputation in software and systems development before turning in addition to hardware re-

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tailing. Other companies such as Travelog, Computeracc, Business Modeler Systems, Shannon Robertson, all specialize in particular systems and packages.

All agree that in the heady technological atmosphere of 1984 the temptation to rush onto the computer bandwagon is fraught with danger and the difficulties encountered by the smaller business when installing a computer can have tremendous financial impact and can actually make or break the company – especially if the process goes wrong.

Comments received from a number of small business managers recently surveyed by Today's Computers are revealing.

Time and time again the advice to others was "buy locally", meaning that post-installation support is of crucial importance, even in the case of the most straightforward system.

David Matley, managing director of Factory To Foot, a chain of 3 massive cut-price shoe barns throughout Brisbane's suburbs, bought his computer locally (an HP 86) but decided to buy a software system developed jointly by another shoe retailer and a Victorian software house.

While the package is of a high standard, the post-installation period was, in Mr Matley's words, "horrific".

At present Factory To Foot is in its third-month period since the computer was installed and it is only now that Mr Matley feels it is beginning to work well. His advice to others contemplating a computer system: "Go local. After the initial installation we were unable, for obvious reasons, to have anyone here to help sort out the problems we encountered on a daily basis."

The system used by Factory To Foot categorizes shoes according to style, colour, size, width, children's, ladies', men's, etc, etc, by means of a bar coding function. This is done manually and bar coded tickets are sent to the main shop by the other 2 branches to be entered into the computer.

"If it was on line," says David Matley, "in other words, performed at the point of sale, the operation would be much more successful and we are now looking at acquiring a system of that sort."

Some of the reports the machine can produce are not being fully utilized. "I suppose, having burnt our fingers on some of the other functions, we are not as willing as we were to attempt more new applications," said Mr Matley.

In contrast, owner-manager of Videoflicks, Ralph Williams, bought a local system, with great success. The present system replaced an ICL PC installed 2 years ago, which he said couldn't keep up with the volume of traffic generated by 11,000 customers borrowing 2,800 movies, especially at Christmas when the volume doubled.

Sixteen months ago, Mr Williams asked Competron to install a custom-

Pam Robson

tailored system. In this program, a Bullet 15 megabyte hard disk drive operates a bar coding system for monitoring video film on loan as well as running a printer.

He estimates that the computer, which has proven very successful, equals 2 staff a week and saves $1,800 a week on printing hiring agreements. The system cost $18,000 including further development of the software following original installation.

In the Videoflick system, when a video movie is lent out the bar coder is wiped across the membership number of the client and the movie number is again recorded when the video is returned. From this information Williams, who has taken charge of operating the computer himself, can call up reports on items such as which movie is the most popular, which should be re-ordered, which is falling back and which needs more promotion.

API travel is one of the largest and most respected travel agents in Queensland and has been established for 50 years. A computer system was installed in September 1983, developed by Travelog. The software runs on an ICL PC and performs all ticketing, accounting and diaries.

Manager Ian Cunningham, who has been in the industry 20 years, says that it is the single biggest step forward he has witnessed in all that time. "The main advantage," he said, "is the feeling of security it gives knowing that we have an up-to-the-minute accurate record of our finances.

"In the past, we used a bureau and we were always one or 2 weeks behind with the information. Having our own computer system has given us a better control of our operations. At the same time, it has proven less expensive to lease than the cost of using the bureau."

One Brisbane pilot bought a Bullet system from Competron to run a word processing package in order to write a longer than average technical manual. The computer, which has a 5 inch floppy disk drive, was modified to give extra storage for up to 300 pages. In his own words, he required no graphics, no colour, no frills. What has it done for him?

It has improved his typing, he says. "I didn't know what I wanted at first. I started looking at the Vic 20 and the Commodore 64. In the end I bought a $6,000 job, because that was the only way I could get what I wanted."

Since acquiring the computer he has "taken courses and read the manuals" to improve his knowledge. However, even though as a pilot he considers himself technologically literate, he has found great difficulty in understanding the manuals, which he described as "being written by computer buffs rather than someone who can teach."

A feeling no doubt shared by many. Of the many small businesses examined in the survey, the ones who were most satisfied had bought systems tailored to meet their needs in the first place.

The message was: shop around and go where they will take the time to spend with you to analyze your own particular needs. Start from the software and then find the hardware on which to run it – not the other way around. And buy locally, on the basis that after-installation support is crucial.

Pam Robson is a Brisbane-based freelance journalist.

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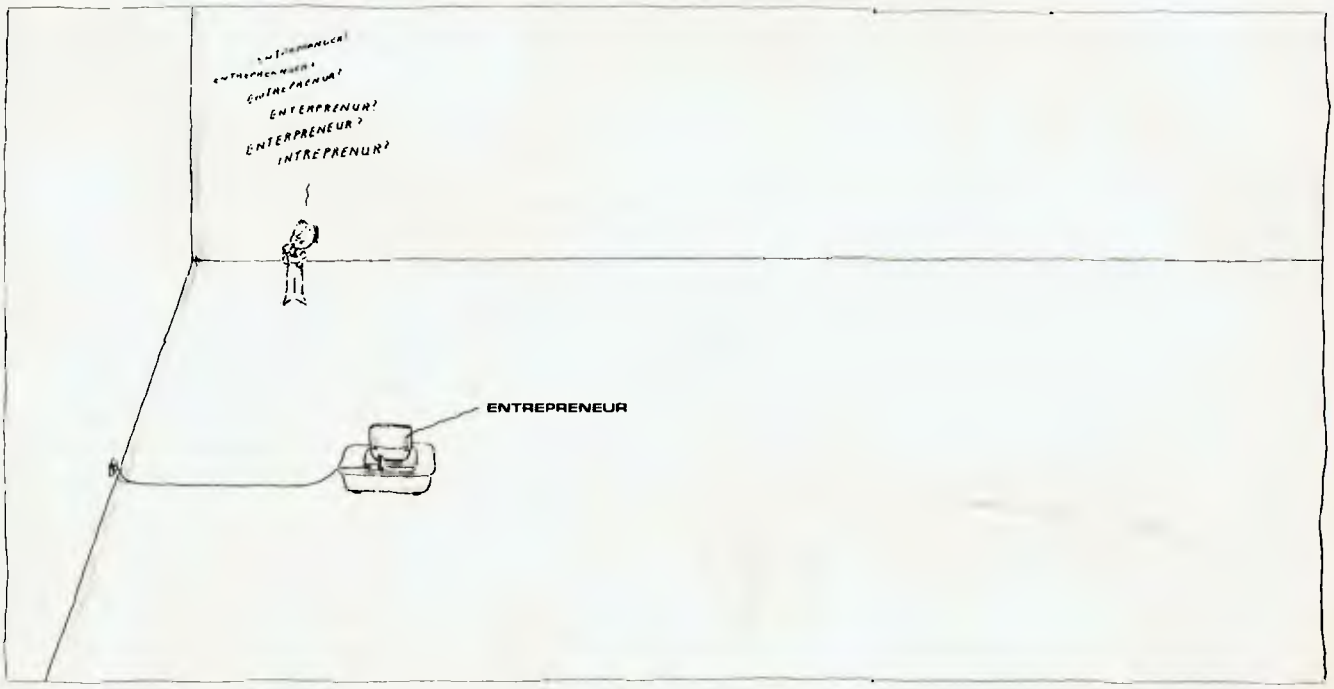

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Bulletin Boards: Look At 'Em Go

There's no neck craning and no drawing pins to break your nails on. The age of the electronic Bulletin Board is with us, with exponential increases in the variety of information that can be accessed.

Bulletin board technology can change the way you and I live and do business.

Some people make money out of bulletin boards. Others use them for fun and advice.

To plug into a bulletin board network you connect your personal computer to the telephone; using a device called a modem. Your computer then talks to the board's computer, and collects typed-in messages that other users of the board have sent to you via their personal computers. These messages can be for "your eyes only", or broadcasts sent to everybody on the system.

It's faster than facsimile, cheaper than telex, and as easy to use as a cake mixer. To use a bulletin board you have to know the telephone number of the board and, with some, you have to know a password also.

In some cases you have to subscribe to the service before you get your password. Others are free, and called public access bulletin boards.

Some boards offer a short visiting time for prospective users. Once you have the experience of a few calls behind you the bulletin board feels like simplicity itself. Having dialled the number, switched on the modem, and put in the password, it is as if someone else is running a program on your machine.

Menus appear on the screen, allowing you to make choices. You then follow the instructions, and go to HELP if you need it.

Chuck Dugate and Eric Bedell from Lotus Corporation in the US who were in Sydney recently say that Australia is the seventh-largest world software market. We only lag about 8 months behind the US scene, they say. What's more Australia is an opened-minded market. You're not set in your ways," they say.

So trends in the US may tell us something about what's likely to happen here. Looking at the worlds largest PC user group, the Capital PC User Group (CPCUG), of Washington, DC, we can see that bulletin boards feature large in the way they do things. Half the group have telecommunications equipment for their personal computers (as opposed to 15% of the rest of the computer-using US population.)

WE ONLY LAG about 8 months behind the US scene, they say. What's more, Australia is an open-minded market.

CPCUG runs more than 15 electronic bulletin boards. These bulletin boards each have different topics: BASIC, C, UNIX, statistics, telecommunications, cryptography and even philosophy and religion.

Articles for the 50-page monthly newsletter come to the editor through the bulletin board system.

Australia's pioneer bulletin boards are still technically oriented, mostly public access, and free. They are predominantly for CP/M users.

Overseas, commercially minded people have begun to find profitable applications in this boffin and hacker territory.

Communications software – at its simplest – allows 2 computers to talk to each other. One financial user who has benefited from new COMPAC-XCOMPAC bulletin board software is the financial commentator and publisher, Ian Huntley.

Huntley uses COMPAC-XCOMPAC to collect data from a financial consultant, which he then edits and sends down the line to a NEC Spinwriter at his printer's premises. The software has already saved him several hundred dollars in taxi fares sending urgent copy to the printers, he says.

A Sydney financial consultant, who prefers to remain anonymous, also sends his weekly charting analysis results down the line to clients. Before he got COMPAC he had to make 5 am delivery runs. Now he's considering opening a subscriber financial bulletin board, with levels of passwords accessing different types of investment advice.

He's a SYSOP. The horrid little acronym. SYSOP, stands for "System

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From page 114

Operator". That's the name for someone who manages a bulletin board.

If you would like to earn the title SYSOP, and run a bulletin board for fun and profit, you'll find it really isn't much work. Once you set it up and advertise the number, all you have to do is check your messages once a day and, if you are taking for goods, process those orders. If you are marketing advice or information, then the real work is editorial.

Some early commercial users of the bulletin board concept are UK computer shops. They use bulletin boards to tell customers what's in stock and to take orders. This justifies the time involved in maintaining the board.

Barry Hall runs the Sydney Public Access Board for love, not money. But he does recognize benefits less tangible than profit: "Contacts," he says. "It's worth it for the contacts."

Hall checks his bulletin board once a day, reads the messages, and sometimes deletes junk. His board runs 24 hours a day. If you'd like to browse the board, Hall's system offers visitor access. This gives you 10 minutes to wander around in it before you get thrown off. If you want more, you have to pay the $20 annual subscription.

The number is (02) 808 3536. "Be patient," warns Hall. "There's usually a lot of people waiting to get on. Prime times for overload are morning tea time and lunchtime, so don't call then."

In Australia both Apple Computers and IBM have quietly developed their own retail dealers' bulletin boards.

Apple announced its product first. Apple dealers can use the system to call up price-lists, sales messages, get technical help, and search software listings. Dealers can leave messages for each other, and communicate with Apple headquarters at Ryde.

The Apple system uses a modem that fits inside the Apple system box and lets you talk the US (Bell ATT standard), and the Australian-European communications standard, CCITT.

Netcomm, and Compac are two Australian products that give you the power to run your own bulletin board service.

Computer bureaus such as I P Sharp, Tymenet, and OTC, offer a pay-by-use bulletin board service. They call it elec-

Australian Bulletin Boards

The following list of bulletin boards was compiled by Lloyd Borrett.

VICTORIA

PC Connection IBBS (03) 528 3750
Sysop: Lloyd Borrett.
Hours: All hours except 6 to 9pm weekdays, 10am to 4pm weekends. (ie, when not required by Lloyd.)
Hard disk, IBM-PC and Compatible public domain software.

MICOM CBBS (03) 762 5088
Sysop: Peter Jetson.
Hours: 24 hours daily.

Sorcerer CBBS (03) 836 4616
Sysop: Bruce Alexander.
Hours: 24 hours daily.
Program downloading and messaging for SCUA members.

Tardis RCPM (03) 67 7760
Hours: 6pm to 9am weekdays, 24 hours weekends.

Gippsland RCPM (051) 34 1563
Sysop: Bob Sherlock.
Hours: 24 hours daily.

NEW SOUTH WALES

Mi Computer Club BSS (02) 662 1686
Sysop: Evan McHugh.
Hours: 24 hours daily.

Micro Design Lab RCPM (02) 663 0151
Hours: 5pm to 7am weekdays, 24 hours weekends.

Sydney Public Access RCPM (02) 808 3536
Sysops: Barrie Hull and David Simpson.
Hours: 24 hours daily.

Omen RTRS (02) 498 2495
Hours: 4.30pm to 9am weekdays, 24 hours weekends.

Sydney TRS-80 User Group RTRS (02) 332 2494
Hours: 24 hours daily.

Dick Smith Electronics RBBS (02) 887 2276
Hours: 24 hours daily.
Challenger-based system – pending Telecom approval.

QUEENSLAND

Software Tools RCPM (07) 378 9530
Sysop: Bill Bolton.
Hours: 24 hours daily.
CP/M, CP/M-86, Concurrent DOS, PC-DOS and UNIX public domain software.

Continued page 120

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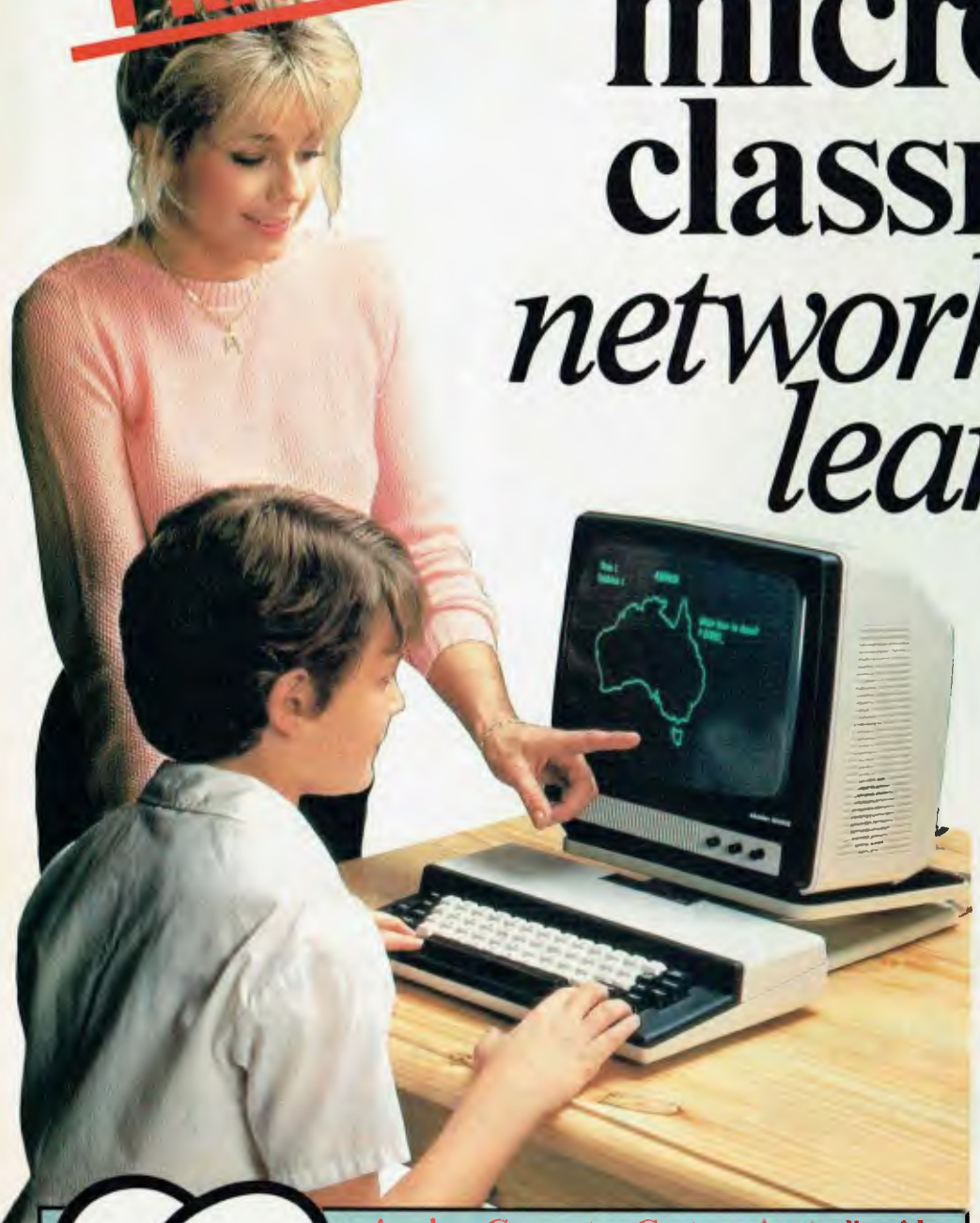

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tronic mail. These are basically giant bulletin boards with giant charges.

One way smaller operators can make money out of the technology is to set up a bulletin board which offers a set of information about products. You get the information free from the product supplier and you then take on an agency relationship, taking 10% on each order taken through the system.

An example of this is the Australian Beginning, which lists books, takes orders, and keeps the agency percentage.

Bill Bolton of Arcom Pacific (the Queensland company that distributes Ashton Tate and Digital Research products in Australia) is the Australian bulletin board pioneer. He has logged 11,000 callers in 2 years. His system now has 20 to 30 callers a day.

Bolton runs his board as a community service for CPM users. By way of a password, users have to answer basic technical questions about CPM before they are allowed in the board. Sample question: What is the CPM file transfer utility? Answer: PIP.

Messages on Barry Hall's Sydney board fall into 2 groups. Thirty per cent are "for sale" messages for second-hand computer equipment – printers, modems, monitors. "The balance," says Hall, "are people looking for help with software and things they have bought.

"They range from highly technical questions about operating system functions, right down to how do I plug in my Apple, and get it running basics.

"Usually these questioners get answers from other people, or from me."

Hall's one-year-old board runs hot 24 hours a day. So hot that Telecom officers have knocked on Hall's door to question his mysteriously high telephone usage. One of the Ryde exchanges threatened to fall over in a steaming heap from bulletin board overload.

Hall has tried to limit usage by imposing a $20 subscription. The average caller spends an hour on the system. Hall reports that a fresh user usually logs on within 8 seconds of the last departure.

Apart from the bulk of NSW calls, callers log in from Queensland, Tasmania, South Australia, and quite a few from Victoria. Hall has had regular international calls from the UK and Sweden.

Hall also has a public library of CPM software available through his board.

Board users are mostly CP/M 80-86 S100 users. Computer and software professionals predominated in the first year, he says, but now he sees a new sort of subscriber – professional, non-computer people. He has 3 doctor subscribers, an anaesthetist, and a member of Parliament – who recently sent him a message to suggest he apply for funding to extend his board services.

From page 116

SOUTH AUSTRALIA

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Computer Ventures BBS	(08) 255 9146
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Omen III RTRS	(09) 279 8555
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Lloyd Borrett is president of the Melbourne PC User Group and PC co-ordinator for BHP Melbourne.

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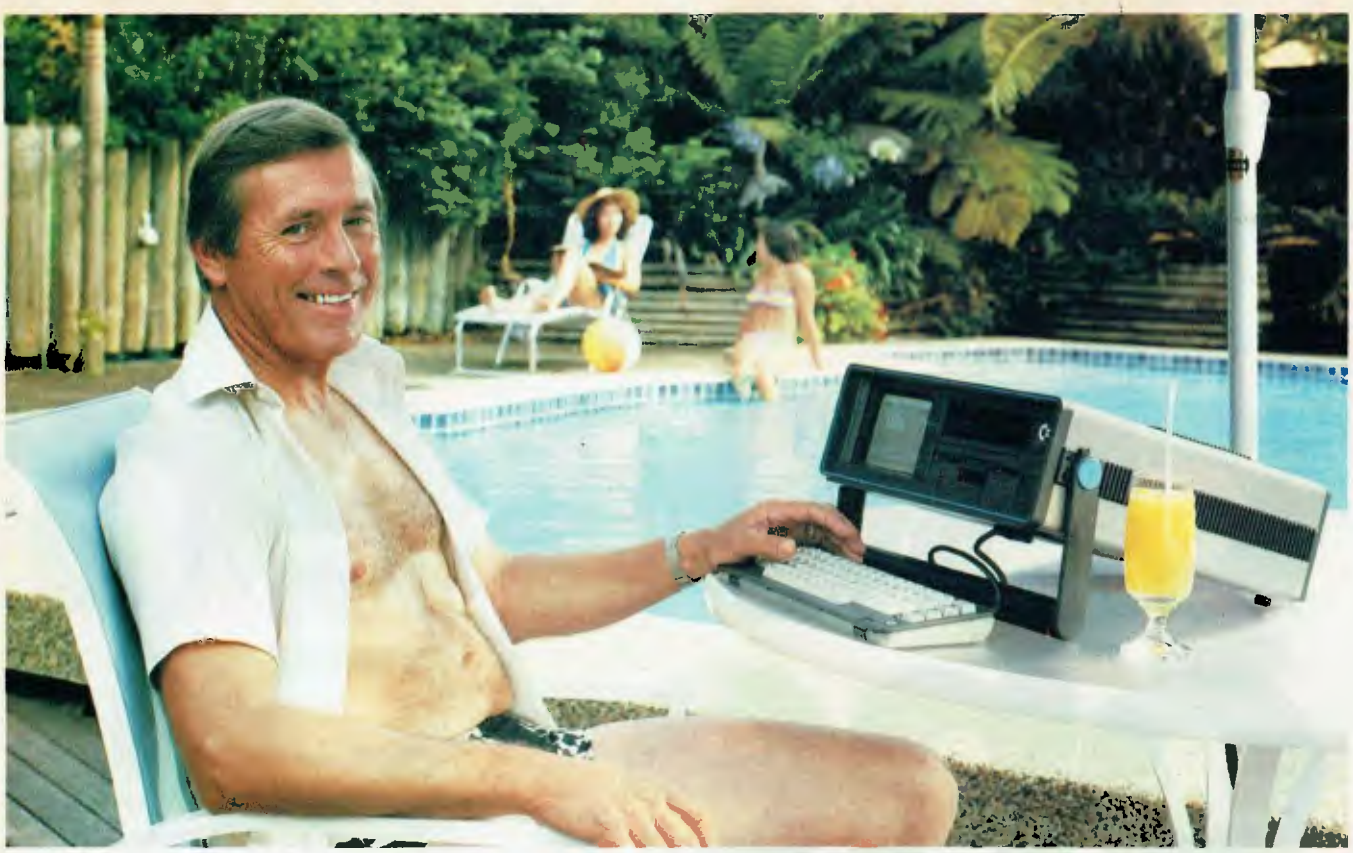

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A Sord on the campus

When is a microcomputer not a microcomputer? When it is being used as a cost-effective word processor and mainframe terminal.

Or so says the University of Sydney, which purchased 10 Sord M23 microcomputers from Mitsui Computer Systems but uses many of them for tasks other than those usually handled by micros. These tasks include correspondence, printing mailing lists, co-ordinating stationery requirements, sorting and printing labels, and bookkeeping.

The word processing co-ordinator came about because a number of departments and areas within the university had a need for word processing, but could not justify the high cost of a dedicated word processor.

Instead, word processing co-ordinator Rita Devine was asked to evaluate the word processing package available on the M23.

"Because users of the new computers were typists and secretaries – not computer experts – a program like Wordstar is cumbersome to use, especially at the beginning," she said. "By contrast, the package on the Sord was simple to use with most functions controlled by a one-key, instead of a multi-strike, operation.

"In addition, it was simple to learn and the screen provided a good, clear indication of what was happening. And text could be moved or copied quickly and neatly."

Another feature that particularly pleased Rita was notation ability. An operator can make a notation during a complicated piece of work and choose to have it printed within the document or not.

"The PIPS facility is so simple to understand typists take only minimal time to learn it and then put it to good use," Devine said. "I have tried some of the major spreadsheet software available and have given up after a couple of days. With PIPS I enjoyed learning to use it and after a couple of days felt quite comfortable with it."

Another user of the M23 within the university is in the Department of Psychiatry. Here the secretary uses it for a number of the department's activities including letters to students.

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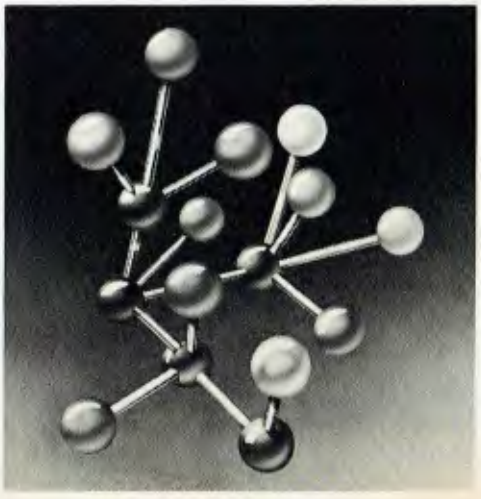

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You know you need a computer. Alas, you don't know computers yourself. And you don't know about salesmen. Don't worry, they'll soon know about you and just how much you do and don't know. But just how much do *they* know themselves!

The small or personal computer has arrived and, like its predecessors, is surrounded by a mist of confusion, gobbledegook and sales hype that leaves most laymen in mental turmoil.

A growing number of business people are embracing the new technology – but not without some of the birth pains associated with any new arrival.

Computerizing your business has almost become fashionable. But a case history demonstrates some of the problems that, unfortunately, appear to be the norm in the computer industry's attempt to saturate the world with its products.

The story concerns a small manufacturing business with a turnover of approximately $8 million and a staff of 28. The proprietor was almost forced, by peer group pressure and advertising, to investigate buying a small computer system. But where to begin?

None of his associates were in exactly the same type of business as he and they all maintained their particular system was the best. When he tried to find out how much it would cost, most of the answers were shrouded in terms like "the hardware is very cheap, it is the software that will run away with your dollars"; "if you buy an off-the-shelf system it is only the price of a good lunch, but you will probably want more than it will give you;" "be wary of the continuing software support costs."

He forgot the idea of getting the information he needed from his business associates and turned to the time-honored system of a pin and blindfold. He chose 2 companies from the phone book and made appointments with each. They seemed to know all about his "very straightforward" problem and would have him up and running by the end of the month at a very reasonable price.

Ron Aitken

He told his accountant of his plan and was advised to ensure that before meeting any intending supplier, he should decide what applications he wanted to computerize. He decided to go for debtors, creditors, general ledger, job costing and payroll.

The representative from company 1 failed to show on the appointed date. He learned the salesman had resigned and hadn't, as yet, been replaced. A further appointment was made, this time with the sales manager who, he discovered, was also a director. It gave him a good feeling knowing that he was going to talk to a heavy.

Software Source, million-dollar Sydney software packages distributor, is vigorously looking for a top marketing manager, following its major linkup in NSW with software manufacturer, Microsoft. **Greg Lister**, Software Source's founder, is overseeing the search.

The salesman from company 2 arrived at the appointed time. Our friend was slightly stunned by his age, about 18 or 19, and his apparent in-depth knowledge of business practices – something our friend had taken 20-odd years to come to grips with.

He was asked for copies of all relevant documents such as invoices, statements (both debtors and creditors), payslips and payroll records, material and labor costing records and ledger examples. No estimated cost could be given at this stage but the total package would be presented to him in 3 days' time with samples of all the computer output he could expect.

All this took exactly 20 minutes and was most impressive. Suddenly, the whole exercise was appearing to be "straightforward". The mist of confusion had been blown away by this seemingly efficient representative of the computer industry.

Company 1 director/sales manager/representative was next and on time. Four hours later a mentally exhausted businessman bade a relieved farewell, feeling as if he had been put through a wringer by a tax investigator. But on reflection, he felt satisfied that all the pertinent information had been passed across. He also had an appointment to visit the company in its offices for a demonstration of the type of equipment available.

None of the companies had mentioned items such as justification for the purchase, cost savings that could accrue from the use of a system or whether it could be classified as a tax deduction.

THE MIST OF confusion had been blown away by this seemingly efficient representative of the computer industry.

No doubt these topics would be discussed during the hard sell which he expected at a later stage.

After 3 days there was no contact from company 2. Company 1 picked up our friend and took him to its office via another client. The other user was a chemist who was using his system for monitoring and control of dangerous drugs. Although he was extremely happy with the system, it did not seem appropriate to our friend's needs.

The demonstration was most impressive and the systems analyst who had been allocated to the accountant asked many more detailed questions. A further appointment was made to discuss the final proposal and cost, which would be staged as 20% on firm order, 70% on delivery and the final 10% on acceptance, which would be no more than 60 days from date of delivery.

. . . the output was determined only by what he had said at the first meeting . . .

Sample outputs of all documents would also be made available at this date. When the subject of cost justification and/or savings was brought up it was met with stunned silence. However, our friend decided to talk to his accountant on this matter.

Ten days passed and the businessman had given up hope of company 2 ever returning but he felt he needed a competitive quote, if only for comparison. He phoned the people at company 2 to be told that due to pressure of business they had not been able to configure his system and asked him to ait a few more days.

Company 1 arrived with a most impressive proposal and asked for the order which understandably, was not forthcoming. Our friend was then told that if he placed the order within 2 days his system would be delivered in 4 weeks and all training would be thrown in at no cost. If he delayed it could be up to 6 months and the company could not waive the training cost of $500. The total cost was $8500, with an annual software and hardware maintenance fee of $650.

What to do? Go with 1, be working in a month, save $500 and finish up with a system that could be vastly over-priced? The alternative was to wait for a competitive quote, lose the $500, delay implementation and perhaps discover the cost was realistic.

He phoned company 2 and asked if he could be given a ballpark figure on the proposed system. After much deliberation he was told that $5000 would be used as a guideline. He decided to wait.

Three weeks later company 2 arrived with a proposal and sample output. The cost was $6500 and the output bore no relationship to what his company did or intended to do. When he pointed this out he was told, in no uncertain manner, that the output was determined only by what he had said at the first meeting and that if there were errors the company must have been given the wrong information.

He was also told the increase in price

MICROMAIL ON THE MARCH

Australia's fastest-growing computer club, Micromail, began in 1983 in Sydney's northern suburbs. It now services over 3,000 members in Australia, New Zealand and Papua New Guinea. It is a retailing organization offering club-style membership.

Micromail offers members a variety of products. Its services include pre and post purchase support, technical back-up, courier delivery, toll-free ordering, phone credit card purchase, free consultation, product training, discounts, a quarterly newsletter, discount vouchers, trade-ins, and up-to-date product knowledge.

Catalogues of products and prices are provided to members.

Micromail's members range from prominent individuals such as Kamahl to institutions – including IBM. Educational institutions, museums, real estate agents, doctors, solicitors, authors and housewives are all on the Micromail members list.

Micromail maintains a showroom at Lindfield in Sydney.

was due to his non-standard accounting procedures.

When he showed company 2 the door, the price dropped by $1000 and promises were made to correct the situation immediately. Company 2 was ordered out.

What to do now? In consultation with his accountant it was decided to go ahead with company 1. He paid the $1700, sat back and waited. During the next couple of months he received numerous phone calls and 2 visits seeking clarification of several points. On one visit his accountant was present and he showed nothing but satisfaction with what he heard and saw.

The great day finally arrived. Three months after paying the deposit, the machine was delivered with a great fanfare. He and his staff were "shown" how to operate the beast in a totally confusing 90-minute period then left on their own until the next day when the "marketing service representative" (a girl of 17) would return, answer all their questions, collect the cheque and the support agreement would begin.

Nothing the staff tried worked and they gave it away with the intention of demanding a training session that would give them the skills they felt were necessary to make the damned thing work.

Following a call to the company it was agreed that a whole day would be set aside for that purpose. It was also explained that since it was May, the previous year's figures would not be required to be fed into the system for comparison purposes. (They assumed, correctly, that the financial year finished on June 30.) This was something that the businessman had not thought of and, on reflection, needed. One of the advantages of a computer system that even he had realised, was its ability to compare figures without hours of manual labour. He called company 1 and said this.

Training began the next morning, and by lunchtime everything was clear. The only thing remaining was the entry of last year's figures. This was negotiated on the spot and for an extra $200 the vendor would pick up the documents, key them on to a floppy disc and enter them into the system.

This happened within 48 hours. Our friend then asked if he could delay payment of the delivery percentage until the end of the first week of live processing, including invoices and payroll, and was told yes. The company supplied 2 people on site for the next 5 days to cover this situation and IT WORKED.

. . . demanding a training session that would give them the skills they felt were necessary to make the damned thing work.

The cheque was handed over and everyone appeared to be 100% happy – that was, everyone except the businessman, who still had a nagging doubt that he had paid too much for the system. As the days passed his fears slowly diminished. He had even started to consider reducing his clerical staff, thereby justifying his investment.

At the end of the month, the system proved incapable of producing statements. Programmers, analysts, salesmen and managers all attended the scene, to no result. Three weeks later the statements were produced manually from copies of the computer-produced invoices. This gave the programmers, who appeared to be wandering round in mental circles, some breathing space.

The end of next month came and went with no success but this time the company's representatives were noticeable by their absence and no amount of phone calls would produce the interest that was obvious during the initial stages.

WHO WAS THIS new Messiah? Would he be any better than the company's boffins?

Three months later our friend spoke to his lawyer who wrote to the company in threatening terms, stating that if the problem was not fixed legal action would be taken. The company then admitted that the statement part of the debtors package could not be made to work and they were searching the world for a replacement.

While discussing the problem with an aquaintance the businessman was given the name of a "contract programmer" who it was felt might be capable of fixing the problem if he could get his hands on "the source code". Not really understanding this but with nothing to lose, he contacted the programmer who confirmed this information. It was suggested that an approach be made to the company asking that the source code for all applications be handed over, the contract be terminated and no further monies would change hands. His lawyer could see no fault with this but who was this new Messiah? Would he be any better than the company's boffins and if not what would the situation be?

All the other applications were working well, a smaller reduction in staff would still be possible. The new-found programmer agreed, if he could get the thing to work, to an annual support fee of $650 which matched the original quote. A letter along these lines was written by the lawyer.

The source code was delivered some 2 weeks later without any objection and the contract was terminated.

Two days later the programmer said he had located the fault and the only way to solve it was to install more memory at a cost of $1000. If that didn't work, he would take the extra memory away and there would be no charge. Weighing this up against the original $850 final acceptance charge it was decided to go ahead.

The next month's statements were produced on the system with no problem.

Easy, wasn't it?

Where did our friend go wrong? Are there avenues available he might have taken – and if so where are they and how much do *they* cost?

The short answer is yes – but some of them are very expensive in relation to the cost of the system.

Continued on page 130

FREE SOFTWARE INCLUDED:
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HORROR STORIES

From page 127

Reputable management consultants do handle this type of work but, until recently, their fee schedule tended to be geared towards the larger type of organisation looking for a long-term contract. Several of the larger, more aware, companies now offer a service where the fee schedule is geared to the small system buyer and the cost is relative to the purchase price of the machine.

They are efficient, professional, and in the area of contract writing (which is most important) very experienced. In most instances they will recommend a system which, pricewise, will fall at the top end of the market–an understandable approach, since their reputation is on the line. A quote from such a company is highly recommended.

A great many medium-to-large accounting practices now have become involved, even specialized, in this area and for general business applications are, probably, in the best position to advise their clients. It might mean a change of account but this should be a definite consideration and this approach would not be as expensive as the management consultant route.

Several large, well-known computer companies offer small, reliable systems with sound working software but again the purchase price can be high. Try them as well.

Small computers have found their way into most industries and in the majority of cases are performing the task admirably. Contacting similar organizations to your own, even competitors, can be most useful as it is possible they have found a computer company which specializes in your area. Never be afraid of approaching a competitor and never be afraid of buying the same system as he, because the more clients a computer supplier has in the same area, the more likely he is to make sure it works as your industry could make up a large percentage of his revenue.

It is probably a case of *you pays your money and you takes your choice*, or more realistically, *you get what you pay for.*

Ron Aitken is production computer services manager, John Fairfax & Sons Ltd.

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Getting Organized On Your PC

Word processors process words while databases organize numbers. Both kinds of programs have basic advantages and disadvantages for helping writers organize their notes.

Your PC can help out with complex writing projects before you actually sit down to type a first draft. As an electronic filing clerk and reference desk, your computer can help select, organize, and marshal your information.

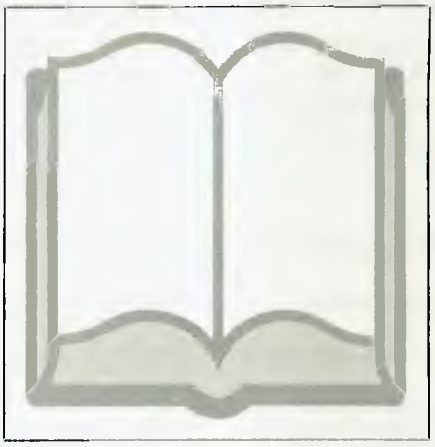
But, even though there are more than 100 different data storage and retrieval programs for the PC, only a few work well for this application. To find the right one for you, look closely at what kinds of information you need to store and what tools are available.

Numbers and Words

Storing the information you need for a writing project is not always a clear-cut proposition. Compared with numeric data, textual information is usually messy: you can't simply take a program meant for saving numbers and use it for text.

Numbers are fairly simple for a program to deal with: they have at least one digit but seldom more than a dozen. When you are allotting space within a program, it is easy to predict how much has to be left for a numeric value. Also, if necessary, you can round off a number to make it fit, and the result is almost always usable.

Textual information, on the other hand, varies greatly in length. Abbreviating or chopping off part of a name or phrase can result in ambiguity in the text. And even alphabetic order becomes complicated



when you consider capitalization, punctuation, hyphenation, and other variables.

Of course, some types of textual information are easier to handle than others. Simple lists, for example, such as those for shopping or telephone numbers, are fairly manageable. On the other hand, a multivolume research report probably requires a more specialized data storage and retrieval system.

In general, textual information causes the fewest problems when the entries are short and independent. Examples are labels for particular events, objects, or people. Accommodating the text is more difficult when the information varies in length and when context is significant.

Word Processors

The easiest way to store the information you need for your writing project is to keep it in a text file on your word processor. You enter the text the same way you type at a typewriter. Using the cursor movement keys, you can insert information anywhere in the text. And to print (or display) the data, you use the normal document-output routines.

If you store small amounts of information and your material is clearly organized from the start, this may be the best method for you. You can edit your notes into a final form. You don't have to worry about the compatibility of different types of files, and you only have to remember one set of operating commands.

There are disadvantages, too. Reorganizing large amounts of information on a word processor can take a lot of time and effort. The program won't help you organize material according to subject matter or any other particular order. And if you want to set up connections between two sets of facts, you have to note that in the text each time the facts are entered.

Some word processing packages are better suited to this application than others. If you collect large amounts of information, you need a word processor that can accommodate lengthy files (one with a virtual memory or a paging system). If you expect to do much rummaging through your files, you'll appreciate one with a flexible search command.

Menu- or command-driven word processing programs execute each command as you enter it. This method can quickly lead to frustration when you need to repeat an operation that is more complicated than a simple word search. For example, *WordStar* has no simple way to say, "Print out all the paragraphs that mention the word *Iowa*. Instead, you have to locate each occurrence, use the block move commands to assemble them, and then print out the result.

You might want to consider using a word processor with a macro feature, which will allow you to write complete routines to search, reorder, or rearrange material according to a specified set of rules. However, programs with this capability merely allow you to do this; they won't do it for you. And writing macros demands the same skill and patience needed to write programs.

Try a Database

Another way to store information is in a database program. These programs are designed for data retrieval, and, at first glance, they might seem to be exactly what you are looking for.

Most database programs for the PC are "relational," which means they consist of a string of records all of the same format, along with a template that defines what each field of the record signifies. You can think of them as row-and-column charts with the labels along the top edge. Each record is a line in the chart with data under each labeled category.

Relational databases are wonderful for clearly defined lists. They are well suited to tasks such as keeping track of employee hours. Packages such as *dBASE II, InfoStar,* and *R:base* can keep track of entire disks full of information, print it out in various orders, and select subsets that meet preset criteria.

However, if the information you want to record is not as well behaved, these programs may prove to be too confining. Many databases have structural limitations and lack adequate search facilities.

To use a database, you have to set up the categories in which to file your information. If you want to collect information on international arms shipments, for example, you have to first specify what each entry will consist of (in this case, a sending nation, a receiving nation, the dollar value of the arms, and whether it was a gift or a sale). Later, if you want to add a category defining the type of arms shipped, you would have to restructure your entire database, a process that involves re-reading and rewriting all existing records. Some database programs lack this restructuring ability.

> Some database methods allow you to use several types of variant records.

Further, the overwhelming majority of relational databases offers only fixed-length fields. When you set up the database, you have to specify exactly how much space per record will be allocated for each category. If you need to make an entry longer than the allocated space, you must reorganize the entire file.

You could, of course, simply create your database with large spaces allocated for each category. If you specify 200 spaces for country names, there won't be a problem. Unfortunately, a relational database saves the full length of each field no matter how empty or full it is. If you had two or three fields of 200 characters each, another two or three of 100, and so on, each record might take close to 1,000 bytes of storage. This limits a double-sided disk to about 300 entries.

The other structural limitation of ordinary databases is that every record must be identical. They cannot be changed to fit the information you wish to put in them. For example, if you are collecting information about forms of government, you might want to keep track of the party affiliation of principal legislative officials in a parliamentary democracy but the military rank and branch of service of officers in a military junta. To do this you would have to include all the categories in every record, whether or not they are needed.

Some database methods do allow you to use several types of variant records. For example, the *CODASYL* (hierarchical) model, used for data storage in COBOL and Pascal programs, allows for the definition of various types of records within the same file. Different types of records share some fields but may also have categories that apply only to that type.

Searching . . . Searching . . .

Most standard databases are intended only for text used as a label or element in a list. Generally, databases can print out a field in only one place, the left margin of its assigned position on the page. You get none of the printout flexilibity associated with word processors.

A more serious problem is that most databases can't quickly look through all their stored information to search for a particular entry. Some models let you index the entries, which allows the database to rapidly find entries with indexed fields that match a specified value. But if the information you want hasn't been indexed, you may have to completely re-index the file or have the program search record by record. This can take several minutes.

If your categories allow for long textual entries, you may want to search for a word or phrase that is not the beginning of an entry. However, many database programs search only for matches from the start of each field.

Fortunately, help is on the way. Software developers realize that writers who use the PC need better tools. New programs that create databases organized like card files are now becoming available. For longer text, more notebook programs are expected to join the few already on the market. And, as mass storage for personal computers comes down in price, look for the appearance of mainframe text-processing programs rewritten for the PC. ■

TODAY

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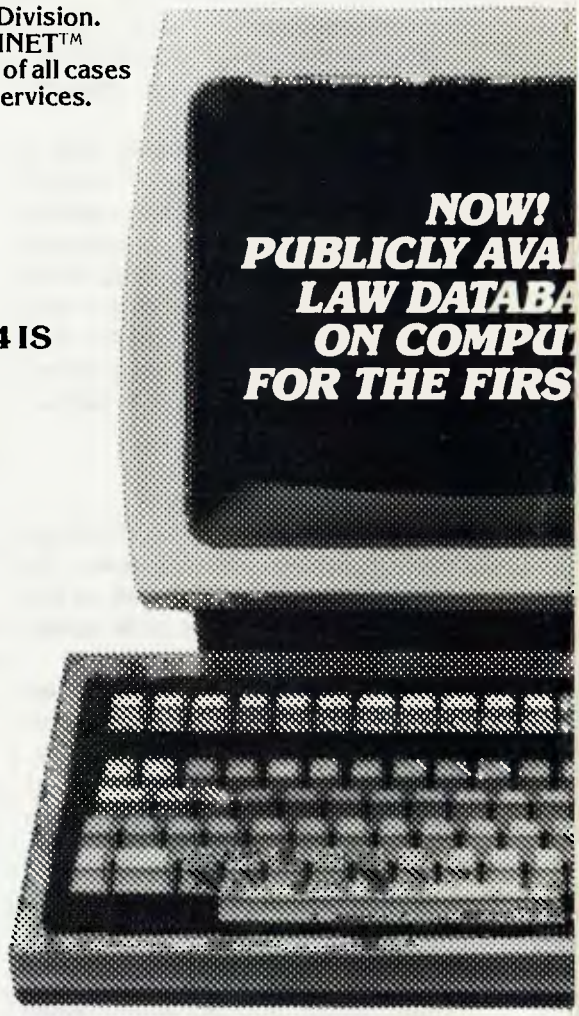

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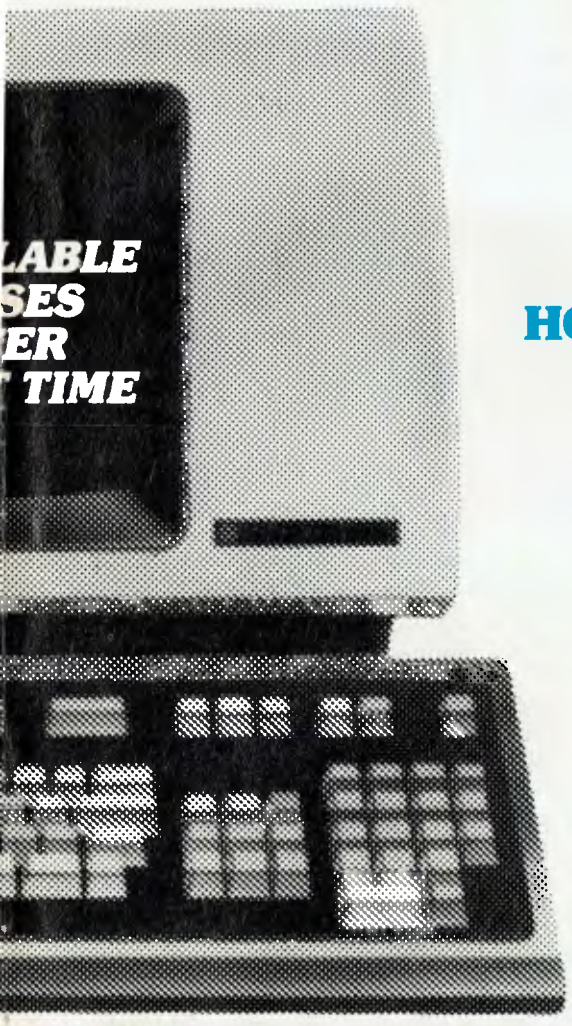

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Computers Bring Home The Bacon

Knowing which little pig goes to market is just as important, in these days of modern stock raising techniques, as how many thousand stay at home. Another curly tale of computerised innovation . . .

The Commercial Pig Company, headquartered at Bendigo in central Victoria, has spent $60,000 to upgrade its single-user Webster Spectrum mini computer to a Winchester machine running 3 terminals which will monitor 40,000 pigs.

The Commercial Pig Company is owned by KMM Pty Ltd, a wholly-owned subsidiary of Elders IXL Ltd.

An increase in production made the upgrade necessary.

AIMS Pty Ltd (Animal Information Management Science) sold the original installation in 1981. Its software has been running on it ever since.

AIMS, which has its headquarters in North Essendon, is an original equipment manufacturer which markets single and multi-user systems to pig farmers throughout Australia. The company also offers a bureau service.

The $60,000 upgrade installed by AIMS includes a $30,000 Spectrum Model LT, storing 60 Mb of Winchester disc, with a memory of 256 Kb from Australian manufacturer Webster Computer Corporation of Bayswater. Additional software enhancements by AIMS, plus 3 new VDUs completed the order. The new hardware replaces a single-user Spectrum Model D, which stored 2.52 Mb, with a 64 Kb memory.

A Webster SZV11 multiplexer connects the terminals to the computer which runs the DEC-compatible TSX-PLUS multi-user operating system from S & H Computer Systems Inc of Nashville, Tennessee.

The system is being used by the company to manage its pig contracting scheme. About 35 contractors, in an area in central Victoria stretching from St Arnaud to Mooroopna, grow pigs for the company.

The system will monitor 4,000 sows and their litters – some 40,000 animals at any given time.

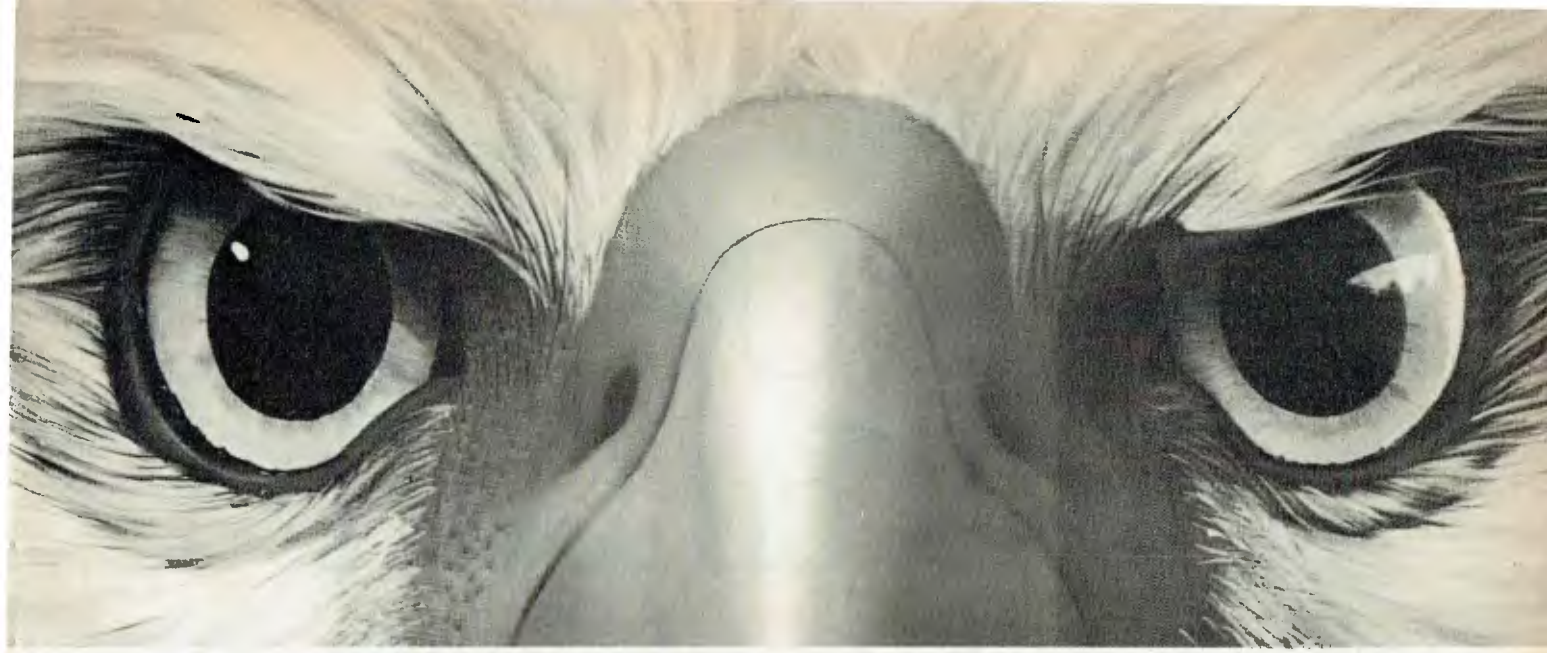
Joe Robarts, financial controller for the Commercial Pig Company, said: "In addition to the extra storage and memory space required, we felt that the system could be better utilized for faster processing if all contractors were on the same disk, instead of having a separate diskette for each herd."

Direct on-line terminals in remote areas were specified to provide greater flexibility for central administration in Bendigo and disseminate information faster.

Breeders each week report on the performance of their pigs. The data is typical of what would be included in normal daily stock book reporting. It includes details of the numbers of litters born on each day, mortalities, individual sales, feed usage (ie, quantities consumed related to food cost), matings and subsequent conceptions.

Terminals at offices in St Arnaud and Mooroopna communicate via modems with a third at central headquarters in Bendigo, installation site of the new Spectrum.

A monthly report is prepared by the central machine.



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Buying Up Big To Fly The Bird

Being late hasn't meant being last for Australian companies queueing for access to the long-awaited Aussat national satellite communications system. They now face top technology in all areas – and tough competition amongst themselves for space aloft.

The first satellite in the Australian satellite system program managed by Aussat will be launched in July next year. But already there are signs that it will be a roaring success.

Response to the first tariff announcements has been overwhelming. The space segment tariffs were announced earlier this year and more than 100 organizations signed letters of intent to use the system.

Of these, 20 would use enough capacity to fill all 3 satellites. Yes, I meant 3. The original intention was to start with 2 satellites and launch a third in 1988. Based on current projections, the third satellite will need to be launched towards the end of 1986 and operational in early 1987.

"The take-up rate for the Australian satellite system would be faster than for any other satellite system in the world," says Aussat's business development manager, Greg Nichols.

"We believe Australians will accept the satellite at the same rate that they have accepted color TV and computers. The Australian market embraces technology with great enthusiasm and the satellite system includes all aspects of current high technology."

The basic unit of communications capacity on board the spacecraft is the transponder. A transponder is a radio repeater and there are 15 operational on each satellite. A transponder can carry a color TV channel or, via a Major City Earth Station, about 1000 voice communication channels. Alternatively, a pure digital bitstream of at least 60 million bits per second could be carried.

Initial users are all the obvious ones – the media, Telecom and the Department of Aviation.

The example: The ABC could use 9 or 10 transponders; The Department of Aviation could use 4. This provides for a fully duplicated network, which is necessary for air traffic control. It also is cheaper than doing it any other way.

Telecom could use 2 transponders. That uses one complete satellite.

Transponders

Then we have the TV networks, which could use 2 transponders each. There are 3 networks, which means 6 transponders.

The SBS wants to extend its service to Perth and Central Australia. This means another 2 transponders. Also, AAP can easily use one.

Two State governments are interested but they need Federal Government approval before they can go ahead. They want to use the transponders for regular State government business during the daytime, and at night they want to turn them over to television.

This means shared usage of the transponders, which is not allowed at present. If the Federal Government relaxes its policy, this shared use may go ahead.

Other potential uses which depend on Federal policy changes include direct broadcasting and pay TV. At present only the ABC is permitted to broadcast direct from the satellite so that the signal can be picked up by a home antenna. Commercial stations must encode their transmissions to prevent home operators from receiving the signal.

The commercial channels will have their signal received by regional television stations and then re-broadcast by the regional stations. This means that a regional TV station can extract those parts of the network programs that it wants and package them for the local audience.

Subscription TV could be provided on the same basis by regional TV operations.

What about the little guy? The businessman? Can he use the satellite?

Well, the recently announced Major City Earth Station tariffs are quite attractive. For example, a 48kbps digital channel costs $20,000 a year.

Apparently, the demand for small portions of a transponder is quite high. A 1% portion of a transponder can handle 10 voice channels through an Aussat Major City Earth Station. With a private earth station, this may be reduced to 1 or 2 voice channels.

Telecom can provide access to Aussat Major City Earth Stations. The tariff has not been decided on yet because a surcharge may need to be imposed if people use the Aussat link to access the dial-up network in remote cities.

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Kangaroo Leaps At A Rainbow

Small but fast-growing Kangaroo Press was generating a paperwork problem... then Sue met Scilla at the local ballet class. Now read on...

When Sue Caffin met Scilla Rosenberg at the local ballet class, nobody could have guessed it was the beginning of a computer affair.

Two mums taking their children along for a dose of culture, they should have talked kids, chooks, choko vines and flowering natives. Theirs is hobbyfarm territory a little north of Sydney, Scilla from Kenthurst and Sue from Berrilee.

As it happened, the mums had business connections. Scilla is a partner in Kangaroo Press with her husband David Rosenberg, while Sue and her husband Roger Caffin have Berrilee Consulting Services – computer systems, electronics and all that.

Kangaroo Press is a small and fast-growing book publisher. Both the Rosenbergs had extensive experience in large publishing houses before they set out on their own a little over 3 years ago. This year, the retail value of their sales will top $1 million.

Titles range from Australian Military Uniforms (10,000 sold at $25) to Bread and Dripping Days (20,000 sold at $5.95). They do glossy hard covers such as *Porcelain Art in Australia Today* and little soft covers for kids like *Belligrumble Bigfoot*. And they cover a lot of ground in between.

Crafts and gardening proved 2 fertile fields for them and Kangaroo may now be Australia's largest gardening publisher.

Diversity is a very fine thing but it creates hell in the bookkeeping department. And that's what Kangaroo had about the time Scilla met Sue. Sales were good but, David says: "We were generating a huge paperwork problem in basic record keeping – invoicing, stock control, forecasting and so on. We had piles of bookkeeping."

Scilla and David Rosenberg

He chooses and designs the books and attends to the business management. Scilla does the selling and promotion and she was burdened with repetitive typing: "Do you know how many camellia societies there are in Australia and New Zealand? Too many if you have to type an individual letter to each one, but that is part of our business – we sell direct when we can.

"I was doing letters as well to go out with review copies, letters to the trade, catalogue material – it was a grind."

Inevitably, David Rosenberg and Roger Caffin met. Inevitably, businesses and computers came up in their talk. Not that the Kangaroo couple were jumping at a computer. They would rather spend money on producing books but all that paperwork was piling higher and higher.

About 18 months ago, Roger recalls: "David began to ask could a computer do this or that. Six months later he was becoming more definite, asking me to look around and see what equipment might suit his business."

David: "I wasn't terribly serious at first but last October I realised that the business was expanding so rapidly and the paper work with it that – well, if we were going into a computer it would have to be done during the quietest time of the year. Suddenly I saw January looming as the one time we could make the change. I said to Roger, 'We'll do it!'"

Caffin's role was to consult and build a system, to make it work. "In November I came up with a proposal and then went into long discussions with David on exactly how his transactions run and how the various elements of publishing in-

FOX 2010M

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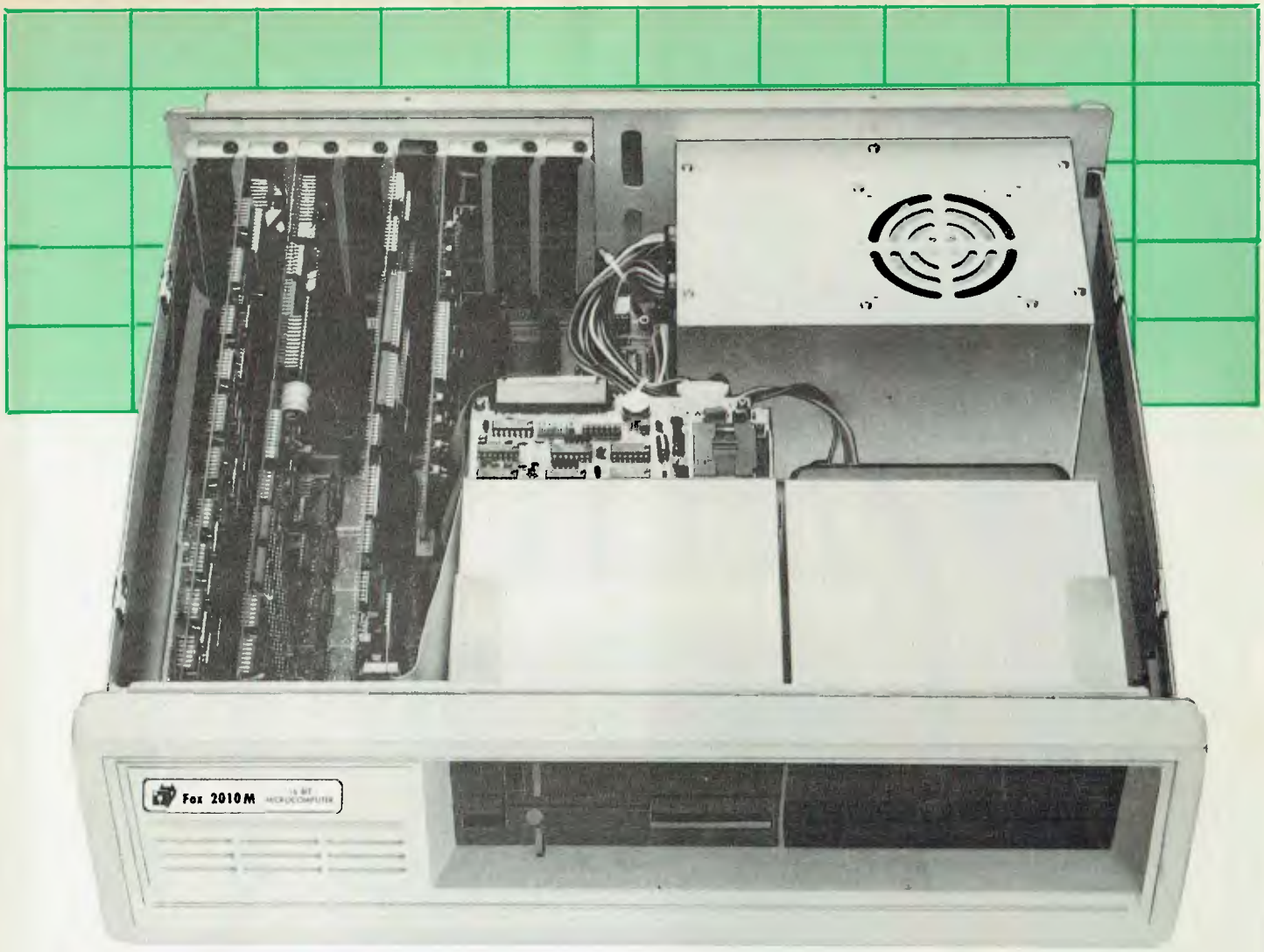


FOX 2001 INCLUDE: SYSTEM 1.

SYSTEM UNIT. TWO FLOPPY DISK DRIVERS, KEYBOARD, PX-11 COLOUR MONITOR.
OPERATING SYSTEM SOFTWARE, LOTUS 123, OR OPTIONAL PERFECT SERIES.

FOX 2010M INCLUDE: SYSTEM 4

SYSTEM UNIT. TWO FLOPPY DISK DRIVERS AND ONE WINCHESTER DISK DRIVE, KEYBOARD, PX-11 COLOUR MONITOR.
OPERATING SYSTEM SOFTWARE, LOTUS 123, OR OPTIONAL PERFECT SERIES.

A. SYSTEMS UNIT BUILT-IN CAPABILITIES:

*Main board

- 16 BIT Microprocessor 8088 running at 4.77m hz for fast program and data access and storage.
- An 8087 high-speed arithmetic processor can be simply plugged into the socket already provided on the main board if required.
- A 2764 ROM chip containing the BIOS program is located on the main board.
- Eight universal expansion slots are provided on the main board — three of which are occupied by the **Disk controller board, Multifunction board color graphic display card.** The five remaining slots allow virtually unlimited expansion.

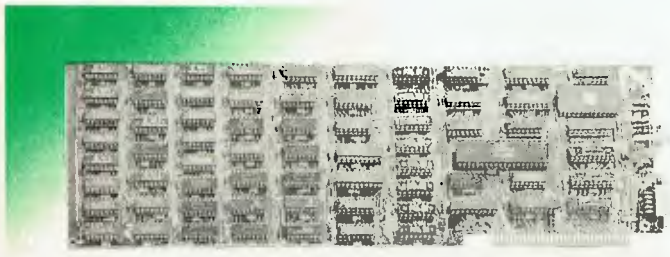
*Multifunction card

- Built-in **256K** byte of high-speed dynamic RAM (150ns).
- Slot to easily add card to 512K when necessary.
- Parallel printer port (Centronics type) for instant addition of any parallel dot matrix or letter quality printer.
- Two serial ports (Asynchronous Communication Port) (RS-232) Standard can be used with a modem, or serial printer or direct connection for net working and or any other form of computer-to-computer communications.
- **Shutdown** hard disk option is included to protect hard disk during transportation or relocation of CPU.
- Automatic **clock-calendar** with auto-recharging battery backup sets the system date and clock at start-up so that your files and records always have the proper date and time.

— Built-in RAM-DISK facility permits the instant addition of any number of ultra high speed RAM-DISKS. This allows often used files to be transferred to a RAM-DISK which uses the high speed (150ns) RAM chips as an "ARTIFICIAL" disk drive providing access time that are up to 100 times faster than the floppy disk drives. This can eliminate countless hours in the office and unnecessary wear and tear on disk drives. The operating system software includes a built-in print spooler to allow you to continue working while the printer is operating.

***Colour graphic display card**

— Capable of driving **Composite monochrome monitor, composite color monitor** and **R.G.B. Monitor.**



— TEXT MODE
40 col x 25 row color/black and white
80 col x 25 row color/black and white
— In Color graphic function
— 320 dots x 200 lines.
color/black and white
— 640 dots x 200 lines
— light pen interface available.

***Floppy disk drive card**

— Capable of controlling up to 4 floppy disk drives.
— Easy to use, without any adjustment

***A side-located reset button** is provided on the side of the system unit to re-boot the system without switching off the complete unit.

***Power supply**

— **100 watt** switching power supply with inbuilt cooling fan capable of handling any conceivable combinations of add-on floppy disk drives, hard disk drives or special function boards.
— Built-in overload protection.
— INPUT:
90—130 volts AC, 50 Hz/60 Hz.
180—260 volts AC, 50 Hz/60 Hz.
— OUTPUT:

+5V + 5%	10 AMP.
+12V + 5%	3.5AMP.
-5V + 10%	0.5AMP.
-12V + 10%	0.5AMP.

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B. DISK DRIVES

***Floppy disk drive**

— Capacity:
Unformatted
Media ..... 500 K Bytes
Track ..... 6,520 K Bytes
Formatted
9 sector, 360K Bytes (MS-DOS 2.0 format).
8 sector, 320K Bytes (MS-DOS 1.1 format).
Sector method ..... soft
Spindle actuator ..... direct drive
(no belts to replace)
Rotational speed ..... 300 RPM
Data density ..... 5,876 BPI
Track density ..... 48 TPI
Number of tracks 80
Transfer rate ..... 250K BIT/SEC
Encoding method ..... MFM
MTBF ..... 10,000 hrs

***Hard disk controller card** capable of controlling up to two standard 5¼" Winchester disk drives or CPU-Based controller with on-board data logic separator.

— Single board design, easy to plug into any slot of **FOX 2001**, directly to make it become **FOX 2010M** mode computer without adding any software diskette.

***Winchester disk drive (ST506/412)**

— Capacity (unformatted)

per drive	12.7 M Bytes.
per surface	3.2 M Bytes
per track	10.416M Bytes

— Capacity (formatted)

per drive	10.3	M Bytes.
surface number	4	
per surface	2.5	M Bytes.
per track	8.19	M Bytes.
per sector	256	Bytes.
transfer rate	5.0	M Bits/sec.

— DC voltage requirements:
12V DC + 5% 1.1A typical
(3.7A max starting for 10 sec.)
5V DC + 5% 1.4A.
— Rotating speed 3,600 rpm.

C. KEYBOARD BUILT-IN CAPABILITIES:

Functionally and cosmetically compatible and interchangeable with the IBM personal computer keyboard, the FOX2010M Computer keyboard includes:

— Built-in tilt control for true ergonometric use and comfort.
— Built-in L.E.D. (light emitting diodes) indicators

provided on the "CAP CLOCK" and "NUM LOCK" keys.
- Coiled eight foot connection cord allows freedom of placement in locating your computer system.
- **Can provide European language** to fill all the customers' demand especially for word processing purposes.
- Large easy target **return key.**

D. SOFTWARE CAPABILITIES:

- The FOX 2010M Computer includes Microsoft MS-DOS 2.11 Operating System software. Lotus 123.
- Can run GW Basic, CP/M-86 and countless packages which are designed for IBM PC including, Multiplan, wordstar, Visicalc, D Base II, Perfect Software, Symphony, etc.

WEIGHT AND DIMENSIONS:

1. **Model: FOX 2001**
- Include system unit, keyboard and two floppy disk drives.
  Weights: nett — 15.4 kgs.
  gross — 21.5 kgs.
  Outline dimension: 400 W x 144 H x 492 D mm.

2. **Model: FOX 2010M**
- Include system unit, keyboard, two floppy disk drives, one Winchester hard disk, and one hard disk controller card.
  Weights: nett — 17.1 kgs.
  gross — 23.3 kgs.
  Outline dimensions: 400 W x 144 H x 492 D mm.

***PX-II Dual Color-Mono Monitor:**
- RESOLUTION
  High contrast dark glass CRT capable to display 2000 characters.
- ERGONOMICS
  A detachable base capable to perform +42° swivel and 5°—15° tilt.
- 16 COLOR DISPLAY
  With capability to display 8 colors each with 2 intensity levels.
- GREEN DISPLAY
  With the Green/Color Switch fully depressed, the screen displays green color only.

***Specifications:**
(1) CRT (Cathode Ray Tube)

Model	PX-II	PX-III
Pitch	.43 mm	.51 mm

Size: 14 inches
Deflection Angle: 90°
Neck Diameter: 29o
Face: glare, dark glass
Phosphor: P22

(2) POWER REQUIREMENTS
100V/117V AC or 220V/240V AC, Selectable. Power consumption is 75 watts, maximum.

(3) HORIZONTAL
Frequency: 15.746 KHz

(4) VERTICAL
Frequency: 50/60 Hz
Blanking pulse: 1.0 msec

(5) VIDEO

Model	PX-II	PX-III
Bandwidth	18MHz (–3dB)	15MHz (–3dB)
Rise/Fall time	20 nsec	25 nsec

16 Colors with Green Text

(6) DISPLAY FORMAT
Character Format: 8 x 8 dot
Capacity: 80 characters/rows x 25 rows
TV Line Standard: 262 lines/frame 60Hz, 314 lines/frame 50Hz, 200 lines displayed

(7) INPUT SIGNAL
Type: Separate
Video Signal: TTL positive
Horizontal Drive Signal: TTL positive or negative
Vertical Drive Signal: TTL positive or negative

(8) DISPLAY PERFORMANCE
(A) Picture Size
(a) Horizontal: 240mm + 5mm
(b) Vertical: 180mm + 5mm
(B) LINEARITY: Character height or width will not vary more than 10% from average character size.
(C) GEOMETRY
(a) Horizontal: 2% max of the horizontal display size
(b) Vertical: 2% max of the vertical display size

(9) HIGH VOLTAGE: 23KV at @0.4mA beam current high voltage regulation less than 1.5Mohm

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DARWIN
089-81-5905

teract. I spent most of the Christmas holidays writing the software. We got the gear together and set it all going in the New Year. It hiccuped a few times – I cured the hiccups and..."

David: "By March it was performing thoroughly."

Why the need for new software? Why not buy off the shelf?

Roger: "Because I found that publishing – or at any rate David's kind of publishing – is an upside-down business. There is no software to suit. The typical commercial outfit, say a shoe shop, will have lots and lots of products and a very small number of suppliers. When an item drops below a certain stock level, you re-order.

"Kangaroo is dead opposite. It sells a small number of titles compared with the styles and sizes in a shoe shop – maybe 50 or 60 books on sale at any one time. It has no suppliers to re-order from because this publisher has to create his own stock. And potentially he has vast numbers of customers..."

David: "I should explain a hidden trigger to our computer decision. In addition to our titles for children we decided to launch a new imprint – Roo Books for 9 to 13-year-olds. Fiction which aims to foster personal involvement and excitement.

"We wanted to sell to schools direct and Australia has 8,000 primary schools. Each and every one became a sales prospect. We would need a system to deal with not only our 500 existing customers but thousands more."

Hardware can cope with numbers but only thought can cope with the intricacies of publishing. Roger found he had to make the system accommodate a maze of variations. "I found that different customers got different discounts depending on whether the sale was to a large book distributor, small bookstore, book club, society, school or whether it was for export. A book club, for instance, might get 60% or 70% off rrp, a private buyer none at all.

"Then it turned out that not only did every customer get a different discount but different deals earned different discounts. I had to find ways to write the program to allow for these wide variations."

At the other end of the business are authors' royalties and once more the complications are endless. No 2 contracts are exactly the same for royalties. Some are on sliding scales. Some escalate at one point, some at another. They may be calculated on rrp, discount price or net.

ACCURATE cash flow forecasts are crucial to a small publisher.

The same author may receive different royalties on the same book depending on whether it is sold through the trade, book clubs or for export. That same author will receive different royalties again for the next book and the next.

When books are returned, the correct royalties must be deducted. Royalties produce accounting nightmares.

Roger's solution eventually would be to tie them to book sales. "We distinguish between the book and the author. A book is an accounting entity and therefore it is the factor to hitch the royalty to. Since royalties are paid only twice a year, we realised it would be a good idea to have the system calculate them on an as-we-go basis. They accumulate so that on any day David can ask the machine for the total royalties he is liable to pay his authors."

Accurate cash flow forecasts are crucial to a small publisher. A decision to put out a book in October must be taken months earlier. But will the money be in kitty when typesetters' and printers' bills fall due?

To calculate the flow from 50 titles which are selling through a multitude of outlets on a multitue of terms is long, tedious labour. To a computer it is just a flash in the electronic pan.

Small publishers tend to be one-off people with their own ways of doing things. Add to that the complications of the publishing business and it is plain that a computer system must be designed to fit the publisher. It won't work the other way round.

Roger spent weeks and weeks in consultation with David – "Until I understood the business and then, between us, we worked out what the system should do."

For hardware he recommended a DEC Rainbow outfit.

"I believe a business system with reliable hardware is unobtainable under $10,000, which is roughly the way this worked out. After building computer systems for 15 years and using DEC hardware for 10, I consider it outstanding, especially for reliability. Then there was the requirement to allow for 8,000 new customer files.

"David bought the Rainbow for Kangaroo, 256K memory, keyboard, professional quality screen and LA 50 dot matrix printer. We set it up to run on 2 floppies – one for the system, one for the data – and already there's hardly any room left. It is almost time to move to a hard disk and the Rainbow has a slot for exactly that."

David: "Without the ability to expand cheaply and quickly with a hard disk, I would not have bought this system."

Roger: "If I had to do this again I would insist on a hard disk to start with. At a cost of $2 to $3 thousand, the value is there."

The Kangaroo and the Rainbow are getting along fine together. David Rosenberg looks easier as each month goes by. Last month he was preparing authors' royalty statements manually for the last time. Next summer the computer will pay the writers.

Roger Caffin invested a great deal of time in the Kangaroo project. One spin-off is that he wrote software for what he now calls *The Clerk System – A Complete System For the Small Publishing House*. Like every other author, he wants to earn royalties from his writing.

Are you thinking of a computer for your business? Can you imagine the spaghetti effect of buying the wrong stuff or getting the wrong software? Does that thought give you bad dreams? How the hell can you tell if a computer expert is truly expert? How do you find the right one?

Well, you could take the kids to ballet class. That's where Scilla met Sue, and later Roger met David and the Roo met the Rainbow...

Harry Robinson is a freelance journalist based in Sydney.

"Small businesses don't become big businesses by turning down opportunities like this."

Arguably the most cost effective small business computer available, the Sigma/OKI is already the second biggest selling microcomputer in Japan.

With advanced business applications both in word and data processing, Sigma/OKI offers as standard a host of features which are normally only available at extra cost.

Features such as ◇ In-built printer. ◇ Dual disk drives (up to 2MB storage). ◇ RS232-C interface. ◇ Light pen interface and calendar clock. ◇ High resolution colour monitor. ◇ 30 programmable function keys. ◇ 3 I/O slots.

Plus over $1,500 worth of CP/M, BASIC, Wordstar, Mailmerge, Calcstar and Spellstar software free.

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Big Nine Plunge Into Training

Most of the big nine accountancy firms in Australia have added computer training to their consultancies, after discovering that their in-house courses are a marketable product. Clients are rushing to benefit.

Complementing their major push into computer consulting and software, most of the Big Nine accountancy firms in Australia have also plunged into computer training and education.

Some, such as Arthur Anderson, with its educational services division headquartered in Melbourne, claim computer education has emerged as a profit centre in its own right.

Computer sources from the Big Nine are thus an alternative to management looking for introductory or specialist software training.

In Sydney, for example, Big Nine courses compete with training offered by specialists, such as Management Technology Education (MTE), Metropolitan Business College (MBC) or Greg Lister's Software Source Bondi Junction facility.

Jane Hemstritch, manager of Arthur Anderson's educational services division, says Anderson's courses are available in most capital cities. Simon Lewis handles Anderson's action in Sydney, for example.

Anderson's offers 2 courses: a 2-day Microcomputers in the Business Environment course for middle and senior management, and another 2-day facility, Computers – Can You Afford Not to Understand?, the last described as an executive briefing. Each costs $400.

Arthur Young and Company started out developing training programs for its staff and later realised it had developed a marketable product. Today the company offers video-based courses in *VisiCalc*, *Multiplan* and *Lotus 1-2-3*.

The Big Nine accounting firms have sortied into executive education. However, specialists in this field, such as Gregory Schmidt of Management Technology Education (MTE), remain unperturbed and have some major expansion plans of their own.

As David Goldberg, consultant for Information Services and EDP explains, the idea of video training is that customers can buy the video and then set up their own training facilities. For a purchase price of $295 for *VisiCalc* and *MultiPlan* and $345 for *Lotus 1-2-3*, the customer gets the video, a student diskette and a student manual.

Courses can be held at Arthur Young's or at the client's premises and include hands-on experience, with generally 2 people to a computer.

Deloitte Haskins and Sells also offers a number of one and 2-day courses at both beginner and advanced level. They include a general introduction to micro

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computers, *MultiPlan* and *Lotus 1-2-3*. This company was one of the few surveyed to include training in *dBase II* and is considering a course in Lotus macros. Plans are also in hand for new courses in *Symphony*, the successor to *1-2-3*, and *Visi-On*, the new operating system from VisiCorp.

According to Howard Pelquest-Hunt, a consultant with its business services division, the company is producing a review of accountancy systems.

He says the company tries to give each person their own machine for the day. It also uses each machine as a remote terminal so that students can switch across to see what the instructor is doing on his machine.

Course prices range from $150 to $175 for a one-day course to $320-350 for a 2-day course and a 60-page course summary is supplied at the end of each course.

Toche Raffe and Company is running courses for clients and government departments and has been surveying the US market to decide whether it should open its own computer school.

The company's national training manager, David Makin, says it is already providing training in spreadsheets, word processing and computer audits on IBMs, IBM look-alikes and Apple computers.

EMPHASIS IS ON helping clients who are first-time micro users

He says that up till now, the company has mainly offered consultancy services – helping clients select the most suitable package for their needs, install it and set it up to meet their requirements.

Hungerford, Hancock and Offner provides training, not only in the use of popular software, but also in the use of specialist packages such as general ledger, debtors and creditors, order-inventory and so on.

According to Andrew Warden, the partner in charge of its management consultancy services division, the emphasis is on helping clients who are first-time micro users.

He says the company has developed a number of training modules so that the teaching package can be adapted to the user's needs. However, it believes that the best training in the use of popular software comes from the material supplied by the manufacturer or from other sources.

"We don't think it is necessary to promote courses as others have done," he says. "We offer more of a hand-holding service and continue to support our clients as we always have."

Peat Marwick Mitchell is the only company of those surveyed using Apple computers. At present its courses are run on Apple IIs but according to John Brown, partner in charge of Peat's personal computer advisory service, these will soon be switched to the Macintosh.

He says the company offers 2 courses for clients and also conducts courses for the Australian Institute of Chartered Accountants. These courses, which cost around $120, are a general introduction to personal computers and a financial modelling workshop using *VisiCalc* and *MultiPlan*. Both involve extensive hands-on experience.

Brown says his company is considering extending the financial modelling course to make it more applicable to the finance industry.

At Ernst and Whinney, emphasis is on training for the staff, but the company will also provide courses for clients which are adaptations of those provided in-house. The company also runs courses for the Institute of Chartered Accountants and the Australian Society of Accountants.

According to Ernst & Whinney's David Holmes, the cost to clients varies depending on what the customer requires. "Some courses can use existing material and so are cheap, while others may require that material be modified and so will cost more," he says.

The courses are based on those offered by the Canadian Institute of Chartered Accountants, which Holmes says have generally proved superior to similar courses from the United States which are more dependent on the instructor.

"We have found that if you don't have the person the US courses were intended for, you can often find you've been wasting your time," he says.

HP150 Starts Work

Bookshop manager Eric Plumb and his staff are busy exploring the potential of their Hewlett-Packard HP150 Touch-screen computer, won in the first issue of Today's Computers.

Our magazine, and Hewlett-Packard, have made some contribution to tertiary education in Perth, because the HP150 is expected to improve the efficiency of the University of Western Australia's bookshop.

The bookshop, which had paid the subscription for the magazine, will eventually be on the university's main computer system.

Meanwhile, the HP150 is expected to fill many roles, from inventory control to word processing. "We understand that the HP150 is so powerful it is really a small business computer, rather than a personal one," said a happy Eric Plumb.

The staff of the bookshop will receive considerable expert help in exploiting the HP150's potential; several are in use in the university and the School of Business Management, one of the users, will be called in to advise Eric and his team.

Learning process

There is a long learning process ahead – Eric admits to very little knowledge of computers. He had only an indirect contact with a primitive model, which carried out some tasks on a time-sharing basis when he managed a bookshop in a Cape Town university more than 20 years ago. Since then he has worked in a similar bookshop at Monash University before moving to Perth.

His shop has bookshelves full of computer works but he admits that it is only a sampling of the vast flood of literature offered. In future, Mr Plumb and his staff may be dipping into their own stock as they explore the full potential of their new tool.

The TeleVideo IBM* PC compatibles. The best hardware for the best software.

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The TeleVideo IBM* PC Compatible line is made by the world leader in multi-user computer systems and the number one independent manufacturer of terminals.

Before you invest, make a few simple comparisons. You'll find that TeleVideo—not IBM* or COMPAQ—has the best hardware for the best software. At the best price.

THE BEST HARDWARE FOR THE BEST PRICE

Features	Tele-PC	IBM* PC	Tele-XT	IBM* XT
Monitor	Yes	Optional	Yes	Optional
Screen Size	14"	12"	14"	12"
Tilt Screen	Yes	No	Yes	No
Quiet Operation	Yes	No	Yes	No
Memory	128K	128K Option	256K	256K Option
Graphics Display (640 x 200 resolution)	Yes	Optional	Yes	Optional
Printer Port	Yes	Optional	Yes	Optional
Communication Port	Yes	Optional	Yes	Yes
MS™ DOS/BASIC®	Yes	Optional	Yes	Optional
System Expansion Slot	Yes	Yes	Yes	Yes

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Medical Systems Can't Crash

Lives are at stake and any computer system used in a medical laboratory must be utterly reliable. A practising pathologist tells how PCs can take the load off laboratory workers without costing anyone an arm or a leg.

Because it involves health care, a medical laboratory can never close down. So in any computer decision involving the laboratory there must be a strong emphasis on reliability.

Of course there are several areas in any laboratory that require only standard software and hardware.

But direct data entry and completely computerized reporting systems lead to a high degree of reliance on the hardware, so staff understanding and proficiency are very important. After hours and at weekends staff must be able to cope with minor faults within the system.

There is a good case for gradual but planned introduction of computers into the medical laboratory. One or several micro computers can be very useful immediately with non-critical tasks while providing invaluable experience for the operating staff.

The choice of hardware should be left until a careful estimate has been made of present and future demands to be made on the system. The choice will depend a great deal on the software available. Consideration should be given to the ability of potential computer purchases to interface with other hardware and communication facilities – networking.

The first step should be to introduce systems that will enhance productivity without resulting in total reliance on the computer. Two such applications are a word processor and a laboratory computer which can take over the functions of a programmable calculator.

There are many advantages in replacing the programmable calculator with a micro. Most programmable calculators are unreasonably expensive – a micro is much better value for money. Programming is also simpler and less prone to error.

Data entry is much easier and safer because prompts within input statements can guide the user through a problem.

Having brought a computer into the laboratory to replace the calculator, the next problem is programming it. Each laboratory's methods differ, so programs

have to be written in-house. Relying on outside consultants is extremely risky because they lack the technical knowledge required and are not sufficiently flexible or available to cope with the constant minor alterations most programs require.

In most laboratories a computer buff emerges who will devote enormous amounts of time, both paid and unpaid, to the computer. This person is a valuable resource and should be treated as such. It takes a lot of "play" to master a system fully but often within a few weeks such a person will be writing simple programs of, say 30-40 lines of BASIC, that will handle most laboratory calculations requiring a calculator.

Writing simple programs is a valuable learning experience. Everybody, from the pathologist or chief scientific officer down, should be encouraged to try.

Clear documentation and good programming style should be emphasised from the start. Clarity should be the guiding principle rather than economical use of memory or other clever programming tricks. A program listing and documentation is a method sheet like any other in the laboratory and it is the directors' responsibility to see that it is properly maintained.

Gradually, more ambitious projects can be undertaken such as curve fitting for standard curves, and graphical techniques to speed up method development.

The next step is to install a computerized data base. The program should be bought and adapted to suit the laboratory. The most important factor is to carefully analyze the requirements of the data base.

A computerized data base will be most successful for a fairly small file which requires a lot of processing. It is much cheaper to store archives on paper, and probably it will be much simpler. A computerized data base comes into its own when it is sorted according to several keys such as date, diagnosis and name or if there is a requirement for a lot of processing such as statistics or costing.

There are numerous disadvantages to a paper file system:
(1) It can only maintain one sorting key at a time (eg, name).

EVERYBODY, FROM the pathologist down, should try writing simple programs

(2) Incorrect insertion may lead to the virtual loss of the card.
(3) Deletion of old cards is difficult and tedious.
(4) It is difficult to copy the whole file (or any significant part of it).
(5) It is difficult to trace incorrect entries such as misspelled cards. A micro data base will help overcome most of these problems. Misspelled names will still occur but programs are available which find names that look or sound similar.

One of the main limitations of a micro-based system is lack of storage space. Although the number of floppy disks you can use is unlimited, many of the advantages of a computer system are lost when the computer cannot access data immediately.

A relatively easy but useful data base would be a small research project, say for developing a new method. Information about patients such as name, age, sex, diagnosis and test result can be stored. Retrieving information about all patients with a certain diagnosis, for instance, would be easy. Information such as the mean and standard deviation of a test result on patients with this diagnosis could be obtained.

I have seen very successful data bases kept on antibody files in blood-banking, hepatitis carriers and their serology, and SNOP classifications in histopathology. Another potential application is stock control, allowing more frequent and accurate costing and ordering, especially of reagents with a short shelf life.

A data base needs to be updated continuously. Unless it is easy to use and can be understood by all users it will be unsuccessful. A specific staff member should take responsibility for ensuring that mistakes are corrected and the data base functions well. A computerized system is no more forgiving than a manual system and incorrect data may be more obvious and damaging, especially if it is used in deriving other figures automatically.

So, having successfully adapted to computers on a small project, it is time to consider more ambitious systems.

A practical small system should offer word processing, scientific capabilities, and a data base. Most micro computers have this available in commercial packages, but other demands help narrow the choice.

One factor to keep in mind is that much of a laboratory's data is numerical and a numerical key-pad is very useful.

A computer in this application should have either disks or the capacity to network with other computers. Cassette-based storage systems are inadequate.

The most expensive system is not necessarily the best. There are many advantages in having several small computers instead of one large powerful one, because most laboratory work is not particularly arduous for a computer. Several small computers permit the lab to press into service a relatively idle unit if another breaks down. The more independent units available, the better for operator convenience. Multiple-user machines are a poor solution for the lab because of excessive dependence on one machine. Users who depend on a remote computer linked by serial lines will appreciate this problem.

Any large-scale project will require a lot of storage and the more storage that is on-line the better. The need for back-up copies and security should also be kept in mind. With careful planning, a Winchester hard disk and several floppy drives will suffice.

Networking offers major advantages in the medical laboratory now and will probably be regarded as essential in the future. Small micro systems can use a remote disk, permitting numerous cheap terminals to be used for relatively undemanding tasks.

Finally, it enables a central computer to collate data from throughout a lab so that it can issue a report. This will be vitally important when computer machine interfaces are installed.

Dr Galloway is a specialist in pathology working at Woden Valley, Canberra.

Looking Ahead

Education and libraries are the current hot topic on the exhibition and conference front. In Brisbane, August 27-31, we have the biggest libraries bash yet seen in Australia, the LAA-NZLAA 84 Conference. At Macquarie University, Sydney, September 2-5, we have the Australian Computer Education Conference (ACEC).

Jenny Adams of the Library Association of Australia (LAA) expects up to 2,000 delegates in Brisbane. Over 60 exhibitors are also involved. Missing, unfortunately, is a good overseas corporate library speaker, a fact that has influenced some Australian private librarians in deciding not to attend.

However, the Brisbane conference will be very big on government and educational libraries. One top speaker is Pat Battin, from Columbia University, New York, another is British scholar and critic Dick Hobbart.

While organizers in Brisbane wouldn't divulge the list of exhibitors beforehand, they are known to include ACI Computer Services, Bennett-Ebsco, 3M Australia, University Microfilms, Insearch-Dialog, Idaps, IBM and McGraw Hill.

ACEC organizers tip a 1,000 delegate attendance in Sydney 2 days later, with some heady themes such as "Computing as an Intellectual Discipline" and "Computers as a Social Phenomenon". Speakers are impressive: Rosemary Fraser from the UK, Alf Bork and Joyce Hakansson from the US and Sue Moont from Canada.

One interesting seminar is tabbed: "Will Women be the Dropouts of the Computer Age?" This should provoke some interesting discussion.

"Education and Computers – Dreams and Reality" is Fraser's keynote address. She is the former director of a major micro computer project at the University of Nottingham.

Today's Computers will, of course, be at both conferences.

Ken McGregor

AUSTRALIA		
LANCON 84	August 15-17	Erindale, Canberra (062) 88 8048
LAA-NZLA Conference	August 27-31	City Hall, Brisbane, (07) 371 7900
ACS NSW Conference	Aug 31-Sept 2	North Beach Hotel, Wollongong. George Walker, (02) 233 7677
Australian Computer Education Conference (ACEC)	September 2-5	Macquarie University, Sydney, conference (02) 818 2591 exhibition John Hughes, (02) 2 0930.
Ausgraph 84	September 18-21	Melbourne Regent Hotel, (03) 387 9955.
Office Expo	September 26-27	Masonic Businessmen's Club, Parramatta, Sydney, David Kyle (02) 958 1811
EPOS 84 retailers	October 15-18	Moonee Valley Racing Club, Victoria, Ken Lane (03) 536 2386
Eleventh ACS Conference	Nov 4-9	ICMS, Bev Parrott, (02) 241 1478
Spectrum 84	November 21-23	Pick users conference, Steve Blow (02) 2 0233
Personal Electronics Lifestyle Expo '84	December 6-9	Centrepoint, Sydney, Graphic Directions, Colin Archer (02) 212 4199
OVERSEAS		
Personal Computer Userfest	September 20-23	New York
SEARCC 84	September 24-28	City Hall, Hong Kong Computer Society George Walker (02) 233 7677
IBM PC Faire	October 26-28	San Francisco
Information Industry Info Conference	November 11-14	San Francisco
Compex-Computer Peripherals	November 13-16	Olympia, London
Banking – New Technology	November 6-9	Vienna, Rick Grellman, (02) 221 2244

NOTE Need more details of any of the above overseas events? Ring Today's Computers on (02) 235 6515.

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Books To Help You Make Your PC Sing

Wordstar made simple

Practical Wordstar Uses
Julie Anne Arca $29.95 (ANZ).

Coincidentally, I was asked to give some instruction on the use of *Wordstar* for the production of a newssheet in the same week that I was asked to review *Practical Wordstar Uses* by Julie Anne Arca.

As it turned out, it was not merely a coincidence but indeed a lucky coincidence, for I found the book invaluable in prompting me in some of the more complicated uses of *Wordstar* – uses that I had either forgotten or never used.

I had always thought that I had a good grasp of the software for standard letter production, and it was not until I had to prepare a presentation on a number of very specific uses of *Wordstar* that I realized how little use I had made of the more powerful features.

Indeed, if there is one thing that characterizes word processors it is their sometimes awesome power. Unfortunately, such power invariably leads to a complicated command structure that is not only difficult to manipulate but impossible to remember.

In hindsight, I believe that I had avoided exploring these powerful features in *Wordstar* because of the rather complicated command structure.

Dedicated word processors overcome this problem by the use of specially marked function keys. *Wordstar*, however, is restricted by the requirement to be all things to all machines and therefore relies heavily on the use of double key press control commands.

I believe that this limitation will be overcome by the modern terminal and in fact I am drafting this review using *Wordstar* on a FREEDOM 200 Terminal in which all the user-definable keys have been customized to *Wordstar* requirements, thus allowing single key press control commands.

Practical Wordstar Uses addresses the complicated command structure and the advanced features of *Wordstar* in an easy-to-understand step-by-step fashion in such specific areas as Form Letters and Envelopes, Boilerplate paragraphs, 2 column format, special document formats, form documents using a data file and mailmerge.

In addition there are chapters on page layout, tabs, margins, the ever-confusing ruler lines and all those other areas that the *Wordstar* documentation has never really explained well.

The book is very well laid out, with step-by-step instructions for each section clearly numbered and defined whilst example screens are given with each section to illustrate the actual effect of the issued commands.

The author has gone to a lot of trouble to ensure a clutter-free, easy-to-read layout, with large simple bold-faced headings and logical paragraph progression.

The lead-in to the book is excellent as it explains the CPM and MS/DOS operating systems and their relation to the *Wordstar* software. A chapter called How *Wordstar* Works explains file manipulation, back-ups and installation. Finally, at the back of the book, is a large fold-out wall chart which summarizes all the *Wordstar* commands – an invaluable aid to the new user.

In summary, I felt that while the book may be a little advanced for the absolute novice, for advanced users or even the novice who intends to pursue the power of *Wordstar*, *Practical Wordstar Uses* by Julie Anne Arca is an extremely worthwhile addition to the bookshelf.

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Portable Micro-Computers –
A Businessman's Guidebook.
Deloitte Haskins and Sells, $14.95.

This new guidebook to portable microcomputers is written specifically for the Australian businessman by a team of accountants and computer consultants in the chartered accounting firm of Deloitte Haskins & Sells.

Deloitte's in May last year published the 200-page *Businessman's Guide to Micro-Computers*, the first book of its kind for an Australian business audience.

The new 110-page guide takes the businessman through a quick assessment of portable micro computers and their applications. It then reviews 11 of the more prominent brands available on the Australian market.

The book divides these brands into "suitcase portables" and "briefcase portables", in a price range of about $1,000 to $6,000.

It reviews the COMPAQ and Gavilan portables, and offers some comments on the IBM portable.

The book lists the most likely business users of portable micro-computers as accountants and auditors, companies wanting terminals to connect with larger computers, travelling salesmen and travelling businessmen, journalists, stockbrokers and money-market dealers.

Guide to Smooth Running

Your IBM PC Made Easy
Jonathan Sachs, Osborne/McGraw-Hill, 1984 2600 Tenth Street, Berkeley, CA 94710, U.S.A.

The goal of *Your IBM PC Made Easy* is to help get the PC up and running with as little fuss and delay as possible. It has not been produced

to teach computer programming, but to assist the user through the day-to-day functions of personal computing.

The first part is user-familiarization with the IBM-PC and its operating system. A further 11 chapters contain detailed information, with tutorials and discussions.

The system unit, adaptor cards and power supply areas are well illustrated.

IBM-PC users still working on earlier versions such as the 1.00 will find some lessons unsuitable as it has been written for version 2.00 and the PC XT. However, earlier DOS versions can be upgraded.

Each chapter is a step-by-step guide and a beginner should be able to cope quite easily. The book also includes an illustrated reference guide for operational procedures which discusses the most common problems and their remedies.

Your IBM Made Easy is a comprehensive guide to a smooth-running system. It's easy to understand and in addition to its many technical details, the guide to resources covers dealers, hardware, software services and accessories for the IBM-PC.

– Carol Quigley

How to get a PC up and running

How To Get Started With MS-DOS
Carl Townsend, Dilithium Press, 1983
8285 S.W. Nimbus, Suite 151, Beaverton, Oregon 97005, U.S.A. $23.95 (ANZ).

Produced as an aid to handling Microsoft's disk operating system, Townsend's *How To Get Started With MS-DOS* endeavours to ease the shock of some of the more hostile attributes of the standard DOS reference manuals.

MS-DOS, written specifically for the IBM-PC is also compatible with a variety of other systems.

The first chapters are an easy-to-read operating system overview which discusses purchasing, protection and copyright, leading to a step-by-step guide through a first MS-DOS hands-on session.

The book content appears to be far too small.

How To Get Started With MS-DOS is friendlier than the IBM-PC DOS manual, but not quite friendly enough.

– Carol Quigley

Not quite friendly enough

Business Graphics for the IBM PC
Nelson Ford, Sybex Inc. 1984 2344 Sixth Street, Berkeley, CA 94710, U.S.A.
$34.50 (ANZ).

Business Graphics for the IBM PC is written for users with a working knowledge of BASIC.

It's a well-illustrated and often amus-

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ing guide to some powerful graphics commands. Each command is reviewed and applied in programs designed for business applications.

Preliminary chapters present a good grounding in "Dull, Boring Business Graphics Theory", progressing to "Bar Wrestling, Log Balancing and Other Adventures".

Ford says:

"The programs listed in this book are meant to serve as starting points for you and as guides for writing your own programs."

It's advisable to have DOS Version 2.0, to get the best fun out of this book as 3 of the most important commands, PMAP, VIEW and WINDOW, are only available in this version.

It's not a beginner's book, but for anyone interested in writing his own business graphics in BASIC on an IBM-PC, it offers a lively and useful introduction to experimenting with colours and graphs.

It's a programmer's binge.

– Carol Quigley

A far from comprehensive software guide

The Osborne/McGraw-Hill Home Computer Software Guide
Steve Ditlea,
Osborne/McGraw-Hill, 1984

According to Steve Ditlea, software is what this book is all about.

Whether your need is to save time and money, to educate the kids, or simply just to have fun, purchasing a set of computer programs known as a software package may result in costly mistakes unless the product is properly evaluated.

This book endeavours to present an overview of a variety of systems and compatible software, both for business and pleasure.

Personal finance, investment, communications, word processing and educational software are listed. However, the enormous number of software packages and systems on the market has led Ditlea into presenting too large a selection without enough detail on each.

Software is a growth industry and products change so rapidly that it's difficult for books of this type to keep up to date.

Computerized entertainment is discussed and classified. Arcade-style games, strategy and adventure packages are listed in tables which include publisher, price and availability.

It's not a difficult book to read, but it does fall short of being a comprehensive guide.

– Carol Quigley

Commodore software on parade

The Best of Commodore 64 Software
Thomas Blackadar, Sybex Inc. 1984
$23.50 (ANZ).

The Best of Commodore 64 Software is intended as a user's reference book and as an overview of resources available for this machine.

There are hundreds of programs sold for this popular computer. Blackadar stresses that he is presenting a manageable selection, not a full catalogue.

The book is a collection of software reviews. Each review lists what special equipment is needed and the author evaluates overall quality, interest level and graphic displays.

About half the book is devoted to games, but the education section covers programs from pre-school to adult level.

Home management and finance is also covered, but this software is a little more complicated. By concentrating on one particular machine, this book is able to present each product in some detail.

The Commodore 64 incorporates a good sound system and the "music programs" chapter offers some interesting criticism.

Pre-programmed software helps users to learn about and enjoy computers. However, choice of software is very much a personal matter.

– Carol Quigley

BOOKFINDER

A User Guide to the UNIX System
Rebecca Thomas and Jean Yates, Osborne/McGraw Hill 1984. $30.55.
ISBN 0-931988-71-3. 503 pages.
A clearly-written illustrated manual-style overview of UNIX Version 7 which the authors recommend you should read while sitting in front of your computer with UNIX up. It is written in tutorial format, and manages to retain a cogent non-patronizing style while presuming no previous computer knowledge. Chapter headings are History, Computers and Operating Systems, Tutorials, Commonly-used UNIX Commands, The UNIX System and Office Automation, Evaluating and Accessing the System and the UNIX System Resources. It includes an index, quick reference to system commands, summary of UNIX 7, glossary and bibliography. Recommended.

Using the 64
Peter Gerrad, Duckworth (ANZ). $29.95.
ISBN 0-7156-1777-X. 328 pages.
If you've had your 64 for a while and want to do some more difficult things, then this swift gallop through BASIC and Machine Code programming may suit you. Sprites, graphics, color and sound programmes are handled, and you also get a pile of heavy-duty material on the 6566 Video interface, the 6581 Sound Interface, the 6510 processor, and the 6526 Complex Interface adapter. A Machine Code assembler/disassembler is included.

Introduction to the UCSD p-System
Charles Grant and Jon Butah. Sybex (ANZ). $28.95.
ISBN 0-89588-063-X. 300 pages.
Exactly what you would need if you dropped your UCSD p-System manual over a cliff when out bush-walking. It covers the basics – what is a computer – and then you plunge into the system and learn how to create PASCAL programs. Screen pictures are used throughout.

The Book of IBM Software 1984
Robert P. Wells, The Book Company (Imagineering).
ISBN 0-912003-02-2. 440 pages.
This exhaustingly comprehensive probe into current software which grades products on a critical review basis, and gives them all an A to F rating over ease of use, vendor support, documentation, error handling, visual appeal, reliability and value for money. Charts compare products in great detail.

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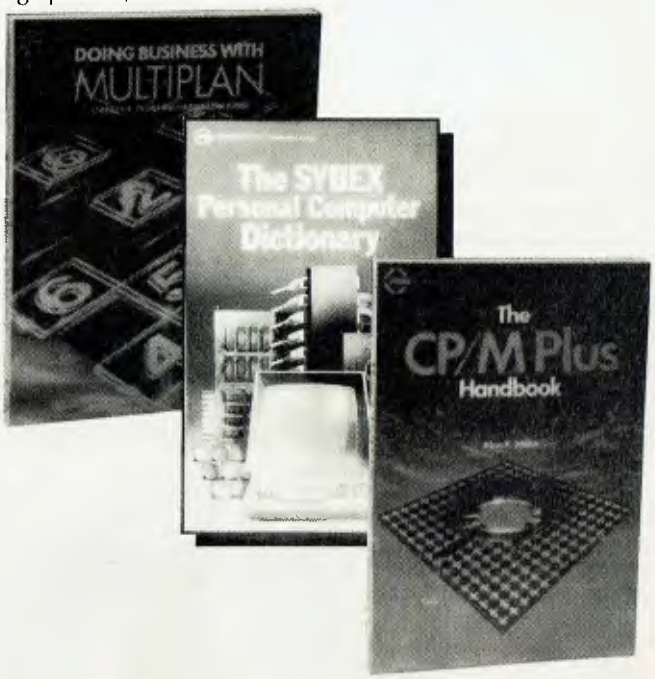
THE CP/M PLUS HANDBOOK
This book is a thorough and convenient way to learn to use CP/M Plus, the newest edition (version 3) of CP/M from Digital Research. Step-by-step instructions make it an excellent tutorial for beginners. The quick reference section on commands and programs and the well-organized appendices make it a handy reference book. The author offers many practical hints that will help you streamline your work and get the most out of CP/M Plus. Whatever your application, you'll find *The CP/M Plus Handbook* an indispensable guide. **$28.95**



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Newsfront

The education market, as this issue of Today's Computers proclaims, looks very promising – but it isn't everything. In fact if one key operator, Fordigraph, had stuck as firmly to this market as it did in 1979 it mightn't be with us today.

In low-key style, Fordigraph Australia more than doubled its sales by diversifying heavily in the past 5 years under one-time company secretary at Esselte Dymo, Bill Curtin. And it plunged heavily into franchising-off key operations.

Still probably best known for its ubiquitious shredders (it holds some 74% of the Australian market here, but contributes only 20% of total Fordigraph sales revenue), Fordigraph is not what it appears. Truth is, it is much more into areas like electronic typewriters, cash registers, plain paper copiers, etc, these days, plus its wide range of Rexel stationery and filing products.

Curtin joined Fordigraph in March 1979 as financial director. He became general manager in November of the same year and managing director in 1981.

He inherited 2 major problems – 80% of sales were into education, and this market was static. Plus Fordigraph was top-heavy with people at its Rhodes, Sydney, headquarters. Sales were under

Bill Curtin

$5 million and Freddie Hall, of Fordigraph's UK parent, Ofrex, wanted some major changes. Curtin made them.

In 5 years, Curtin has cranked sales up to $12 million and seen total staff drop from 130 to 83. The percentage of head office staff to overall staff has dropped from 25 to 6. There's been a return to profitability.

Perhaps most evident, however, is that Fordigraph has gone to outside dealers and appointed State and regional franchized companies in a big way for much of its sales.

"We needed to make some steps and we simply went about the job," comments Curtin. He notes also that $100-million-a-year Ofrex was taken over by Gallaher, an offshoot of cigarette multinational American Brands.

Today, Fordigraph is represented in 6 major Australian cities as well as marketing its products via an Australia-wide network of over 70 business equipment dealerships. Education, incidentally, now comprises 15% of total sales – the action is in business, expains Curtin.

Curtin works a 50-hour week and commutes to Ofrex in London twice a year – Hall is today head of the entire Ofrex operation.

He has 13 franchises throughout Australia and dealer managers in 3 States.

Fordigraph is still direct selling some equipment, such as bursters, shredders, decollators and laminating units.

There are some 700 retail outlets handling various products. Brian Moran is in charge of office products marketing. Curtin is currently looking for product and marketing development managers, as part of a look-see into longer-range planning. Dealer support managers are already on board.

Accent has been on expansion of product base, target markets and distribution networks. The Curtin strategy, apparently, has paid off.

John Winters *with the Attaché software case.*

Can a young Australian software house take on the giants of the American industry and beat them? Signs are that Attaché Software, of Sydney, can.

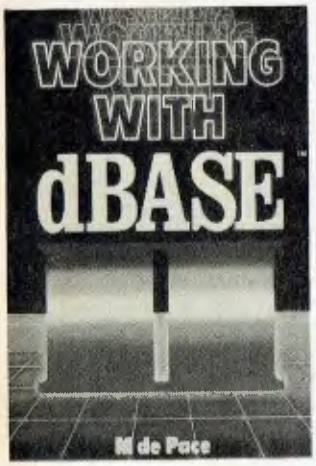
Indeed the news from the US and the elegant new packaging almost succeeded in upstaging the release of version 3.0 of the company's package of integrated accountancy software.

The announcements that set the release buzzing were the Attaché has signed installation and support agreements with 2 of the largest accounting firms in the US, Deloitte Haskins & Sells and Coopers & Lybrand.

According to Attaché's Australasian

Continued page 168

CRS BUSINESS BYTES



WORKING WITH dBASE II

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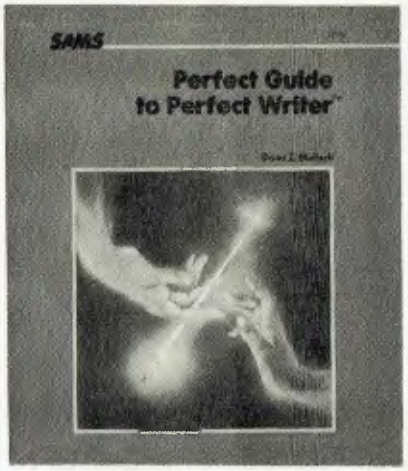

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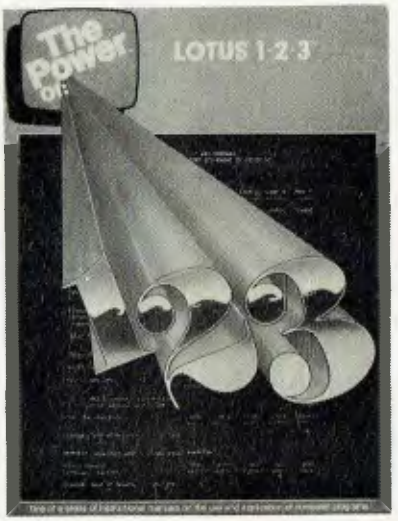

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Letters

Can readers help?

Sir: I retired some 6 years ago as Internal Auditor for a large manufacturing company. At first I continued as secretary of the district bowling association (of 16 clubs and over 8,000 members) and then took up duty as treasurer of my own bowling club.

Whilst holding that office, I recommended and managed the installation of an Apple II with twin disks etc. I prepared the specifications but did not write the programs for the main systems, but I did prepare a host of *VisiCalc* routines that are still being used in association with the main systems.

Earlier, in my working life, I managed and wrote programs for an IBM 360 system.

Now, for the first time, I am without the sort of mental stimulus I feel I need (I should mention that I am now 68). My intention is to acquire a suitable PC with a single disk drive and a screen, and set about learning BASIC and, perhaps, PASCAL.

The local Apple dealer has suggested the Apple IIc, at about $2,100, and the Dick Smith branch has offered the Cat at less than $1,500. To my mind either would suit my purpose.

But I am intrigued (and somewhat puzzled) by ads for dual processors (Z80 and 6502), in the sort of configuration I want, in the $1,100 to $1,200 range.

Then there is the Sanyo MBC550 at about $1,700 odd.

Tell me, what are the merits and demerits of the dual processor approach? Are there compelling advantages in going for 16-bit as in the Sanyo?

That aside, can my aim be achieved with the Apple/Cat? And, if so, is there any valid reason why I should spend more than the Cat price?

J. Gibson
Nowra
NSW 2541

Editor: What do you think, readers? Let's hear your views.

Praise from the UK

Sir: You have sold me. Your August issue has just arrived. Your story on Shannon Robertson Systems and its Saltbush software with the 2 wild Aussies jackarooing around your Outback, was great.

I could smell grilling witchetty grubs, billy tea and heaps of dust around the billabongs, as the locals sit down to talk PCs around Ayers Rock. Brilliant stuff, and so unusual to read in what is after all a computer magazine.

We have over 100 small computer magazines here in the UK and, honestly, very few of them can we understand. They are full of moon language, boring

PC pictures of solitary hardware and odd-named columists breast-beating about their software expertise. Really user-friendly!

I am a mother of 2 teenage children and run a small business. We have a computer at home and I am considering one at work. No-one has, unfortunately, heard of your beautiful MicroBee and Executive 816 computers here, but the ads are interesting.

Today's Computers appears unique in being readable, colourful and useful to essentially non-computer people who really don't want to be computer people smothered in bits and bytes. People who want to get on with their own lives, simply using computers as tools for specific applications.

Keep up your pioneering work and come over here and give us a magazine we mortals can understand.

Anne Diab (Mrs)
Ryde, Isle of Wight
UK

Editor: Thank you, but our principals haven't exactly warmed to the idea of re-locating to the Isle of Wight. As the ancient proverb they quoted to us in Jackeroo has it, a rolling bit bytes no witchetty grub.

Tax systems

Sir: Congratulations on Today's Computers. It is going from strength to strength!

We were very impressed with the articles on tax preparation systems.

One small point I would draw to your attention was in the June issue, page 27 article, NB: Obey Government Rules. The article refers to Merelyn Kelly and TAXPREP. We are in no way involved with TAXPREP and do not promote, sell or support it. We looked at TAXPREP some 5-6 months ago, but rejected it in favour of writing our own system, TAXPAC.

We are seeking Federal Government approval for our TAXPAC system.

David Cunneen
marketing director
O'Reilly Computer Pty Ltd
Hunters Hill
NSW 2110

Less about hardware

Sir: Despite the hype to the contrary, most Australian business managers don't have first-hand experience with computers, do have a fear of them and

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are too busy doing the jobs they get paid to do to carve out large slabs of time to learn "all about computers."

Worse yet, unlike America, most college graduates here *don't* type and don't feel at home on a computer keyboard no matter how "user friendly".

What we do have is a burning desire to get on with our own jobs and have our information better managed and our own output more productive by employing proven computer applications.

I strongly suspect that a great many computers are greatly under used in terms of both limited applications and time in use. Surely every extra application in an office doesn't need some fancy software re-invention of the wheel to get it going? Less editorial talk about hardware and more focus on solving problems would be a welcome change in reading and more use!

A. Murphy
Debyale Pty Ltd
Roseville, Sydney

PCs and refugees

Sir: I was most interested in the article in your June issue on Sharp computers being used in the Middle East for archaeology. There are many other potential uses for PCs in the region – take Ethiopia, for example.

A PC in gaol

Sir: My name is Peter Schneidas and I am presently serving a life sentence in gaol. Five of the 7 years that I've already served were spent in solitary confinement in the Goulburn High Security Unit and it was only after a 57-day hunger strike that I was moved out of solitary back into normal prison discipline.

I've been in gaol since 1975, my original conviction being for passing dud cheques. In 1979 I was convicted of the murder of a prison officer in the Observation Section of Long Bay Gaol. Life in gaol is never rosy at the best of times, but the reason for my conviction meant that it would be particularly grim for me. If the prison officers had their way, I would spend the rest of my sentence, if not my life, segregated, cut off, alone.

For 4 years and 9 months I endured this, doing everything I could to hold back the relentless effects of the sensory deprivation upon which segregation units such as the one at Goulburn rely for their effect. The aim of such places is to break the spirit, and eventually the mind, of those held in them. I would not let this happen to me.

Last year a group of my friends purchased for me an *IBM Personal Computer, with 2 x 320K disk drives, 256K extension, a monochrome display unit* and a *Brother HR 15 Printer.*

The reasons behind their incredible gesture of generosity were many. The life that I have started to build over the last couple of years, the people and the relationships that I've been exposed to and involved in, have enabled me to see and experience a world that for so long was just a myth to me; a world of caring, genuine human beings.

At one time I thought that I would die in gaol. With their concern and encouragement I've come to see that this need not and should not be the case.

Peter Schneidas

The PC will enable me to do challenging and interesting work within the prison system. It will enable me to acquire skills that will give me a base upon which to start when I am released. It will allow me to keep pace with a rapidly changing world outside the prison walls and ensure that when I do step through those gates, I'm not confronted with an alien landscape.

The problem, however, is that the debt of acquiring the PC has made it impossible for those who care for me to purchase software. I do have *WordStar*, and also *Disk Librarian; IBM Basic, Cassette Basic*, and advanced *Basic*, and *DOS 1.1.*

What this letter represents is a desperate plea for help to allow me to do justice to a fabulous little computer. Can you help with any software that will run on my machine? I'm particularly keen to have *Mailmerge, VisiCalc* and any other programs and games that will expand the use of my machine...but games would have to be ones that I could run without a graphics adaptor.

I have a magnificent machine but, at the moment, can only use the word processor which does little more than keep the rust off it.

I'm also keen to establish contact with anyone who might own or work with an IBM-PC who would be able to provide me with user support. I'm learning from a book, and find that I'm encountering problems with the software I have that only contact with a user will enable me to solve.

At the moment I'm in a frustrating position of having the PC, but not being able to use it as it should be used and as those who purchased it for me intended, because of lack of software and user support. I make the PC available to other prisoners, so any program you can send me will be appreciated...from the most complex to the simplest game.

We will all appreciate your efforts, for when the prison gates slam behind an inmate he does not lose his human qualities; his mind does not become closed to ideas, his intellect does not cease to need a free and open interchange of opinions, his yearning for self-respect does not end nor is the quest for self-knowledge concluded.

If anything, the need for identity and knowledge are more compelling in the dehumanizing environment the prisoners and I are presently subjected to.

I'm also in great need of disks, form paper, and Brother HR-15 Ribbon. Anything and everything you may be able to send me will be so greatly appreciated.

Peter Schneidas
PO Box 166
Bathurst
NSW 2795

Editor: Major software distributor/manufacturer, Microsoft, has already supplied Schneidas with $1,400 worth of software, including Multiplan, and a mouse directional device.

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Ethiopia is about the largest refugee centre in Africa – there are about 300,000 mostly destitute people from Somalia, South Sudan and other places nearby. It's a massive registration process, all done by us manually, at present.

We have to clock up details such as relatives tracing, health and education statistics, etc. The UN has no EDP facility here at present. I cover nearby regions such as the Ogaden, Dire Dawa, out of Addis Ababa.

It is a laborious task, slow and uninspiring and I wonder what impact portable, lap-type computers would make? PCs are virtually unknown.

Today's Computers is readable for a computer magazine. It is also lively and most useful for people such as us looking for new applications. Keep up the good work.

Colin Mitchell
United Nations High Commission
for Refugees
Addis Ababa
Ethiopia

Spread the word

Sir: I "discovered" Today's Computers in a Yeppoon newsagency. I bought your second issue, read it through from cover to cover and promptly wrote you for an annual subscription.

I have just received your third issue. I learnt a lot from your acticles on the PC developments in Japan. Your Software Locator was most useful.

Late last year, I attended a series of lectures on computer culture organized by The Annenberg School of Communications at the University of Southern California. I am surprised that no tertiary institution in Australia has organized a similar series of lectures to spread computer awareness among the general public.

Perhaps Today's Computers ought to organize an Annenberg-like series with the co-operation of foundations and experts.

(Dr) Shelton Gunaratne
Rockhampton,
Queensland

Editor: We are investigating activities along these lines and hope to make some announcements soon.

Clubs or associations

Sir: I would be interested in learning about any software covering applications of clubs or associations.

Areas I would like to tackle would be membership lists, newsletters, direct mailers, surveys of members, billing of subscriptions and word processing for correspondence.

Can Today's Computers define software available and what hardware would be needed to get the above up for, say, an association of 300 members, and a club of 1,500?

We do not wish to spend more than $4,000. In fact, if we could spend a lot less we would be delighted.

Douglas Bennington,
Brooklyn, NSW 2253

EDITOR: Can any readers help?

Standards

Sir: I am now thoroughly confused at disc standardisation on personal computers for business.

Apple is now with three and a half inch on the Mac; IBM is about the five and a quarter inch and now a consultant tells me eight inch discs are far superior because of the presumably extra storage they offer.

We could well invest in two personal computers this year but we see consumables as being a key area.

Bill Forsyth,
Cammeray, NSW, 2062.

Left-handers

Sir: As you will see, I have taken a 12-month subscription to Today's Computers.

Your depicted prize computer was for left-handers!

When, if not for this alone then surely when taken in combination with my amazingly astute observation, I am selected as winner of the amazing HP 150 PC, I wonder if perhaps I may choose the truly amazing kack-handed version featured (your advertisement for subscriptions) in your first issue?

We left-handed computer freaks don't usually encounter such consideration and so I (speaking for us all) thank you for trying.

Neil R.G. Gilmour
Randwick, NSW 2031

Editor: Unfortunately reader Gilmour didn't win our $10,000 HP 150 PC. Perhaps he might not have been interested – our left-handed HP 150 in our first issue turned into a right-handed beast in our second issue.

Guide wanted

Sir: The comments of Elizabeth Wilson, in the letters section of your May issue I find highly commendable and I endorse the comments made by yourself.

Being retired from the workforce, I am desirous of doing a "spot" of writing, and feel certain that somewhere among all the hardware and software of the computer equipment, there is something that would be of immense value to me.

However, without wanting to be facetious, the impression that I have gained from my encounters with the sales sections of the computer industry at large is that the most important criterion is the "sale" itself, not so much the suitability of the equipment in relation to customer satisfaction.

Perhaps your paper could include a guide to others as well as to myself in such matters.

Cyril Coker
Rockhampton, Qld.

All correspondence should be addressed to Today's Computers, Box 506, GPO, Sydney, 2001.

Data Banks Branch Out

Non-statistical background information on companies can be obtained by tapping huge information banks in the US, Europe and Japan. Australia also supplies a growing number of such services. The Commonwealth Bank's Rosemary McLachlan explores the range of services available.

Extensive clippings files and libraries of yearbooks are living on borrowed time. They are gradually being replaced by centralized electronic information files held on giant computers often a continent away from your office.

The new methods of storing information offer better and more up-to-date analyses. You can obtain this information on your desk-top terminal, communicating with the information banks via ordinary telephone lines.

Consider two situations. One could apply to a bank or lending institution, the other to a product-oriented manufacturer, say, a soap company.

One: You are dealing with a client firm operating locally. As part of the client firm's approach it refers to an overseas parent or shareholder who will act as a guarantor or who has provided a letter of comfort.

Regardless of the size or reputation of the offshore firm, you want fast some concrete information on its operations as well as general information on its management processes. Where do you go for this information?

Two: You are conducting research into your local competitors in a certain industrial sector and are interested in a variety of ratios that are considered to be significant for the sector.

There are about 20 to 30 companies identified and the "manual labour" involved in collating and calculating daunts you to begin with. Where do you start?

Such situations may be occurring daily in the course of your work, and you've always resorted to either the "old boy" network (called by information scientists an "invisible college") or your own hunches.

"Seat-of-the-pants" decision-making may in the past have got you some distance with only a relatively small percentage of failures, but why adopt modern decision-making practices and use outdated methods of gathering the information on which to base the decision?

Climb aboard the 20th century.

The area of corporate intelligence is of vital importance to most businesses. There are many ways of coping with the problem, each with a different level of success. Some companies have an active corporate library or information service; others maintain extensive clippings files, often with duplication from section to section; still others pay for outside clippings services or information brokerage such as that provided by AFR (Infoline) or Infoquest.

At the Commonwealth Bank, the majority of requests for corporate information now go either to our Dun & Bradstreet contact point (for local information, especially on private companies) or to our research library.

From this point we use any or all of: published directories or indexes, the AFR Infoline service, and corporate databases.

The latter are growing in number and size as the commercial world becomes increasingly sophisticated in its approach to information gathering. You should be aware of them.

Owners of micro computers and personal computers need to obtain a modem (either on lease from Telecom or one of the Telecom-approved models available for purchase) linked both to the computer and to a phone, preferably one bypassing a switchboard.

Some databases are available via direct leased lines (IP Sharp) using passwords supplied by the database vendor, while others (Dialog) are available via the Overseas Telecommunications Commission's Midas connection to overseas public telecommunications networks.

OTC will supply the initial password, according to the system you wish to access. Line speed rates (300 or 1200 baud) can also affect charges.

Australian electronic corporate files are of 2 types: bibliographic and numeric.

ACI's Ausinet system gives access to ABIX (on-line version of *Australian Business Index*) and AFRE (this index to *The Australian Financial Review* has no paper equivalent, except in the cuttings at AFR Infoline office). ABRW is also available as well, indexing the Business Review Weekly comprehensively.

Both specialty newsletters (ABIX) and Infoline (AFRE and ABRW) offer document back-up services.

System protocol requires some training (2 days initially) and demands on-going practice, but the increase in availability of Australian information on this system will have long-term benefits.

Australian public company information, including financial statements, ratios and shareprice information, is made available by both the Sydney Stock Exchange and the Australian Graduate School of Management, and I.P. Sharp's network.

These files are now accessed fairly easily via a user-friendly approach called *Interactive Financial Analysis*.

This software gives options to be answered instead of requiring any programming.

We have found, though, that this system is being developed continually, and it pays to keep in touch – at a $60 an hour minimum rate, thinking and reaction time is expensive.

Overseas, the most developed array of commercial databases covers US companies.

Once again, files are bibliographic and numeric. DIALOG Information Services has the longest history and the broadest range of business databases, and those covering corporate information are varied and extensive.

Bibliographic files include: ABI/Inform, a major source of journal references to companies for background information, Management Contents, a little more theoretical but still useful; and Economic Abstracts International, more economic than commercial in emphasis.

The first 2 of these are also available on ORBIT, System Development Corporation's database service.

Files combining bibliographic and numeric data include: PROMT, Funk & Scott Indexes, Annual Reports Abstracts (all from Predicasts Inc) and Standard & Poor's Daily News, a constantly updated file that often reports quarterly financial statements before they appear on any other system.

One of the most popular US files, with good reason, is the Disclosure database, which is now available in Australia on at least 3 systems: via DIALOG, I.P. Sharp and Control Data.

The Commonwealth Bank's Rosemary McLachlan

This data is from the files of the US Securities and Exchange Commission, and is made available by Disclosure Inc.

There are differences in presentation from file to file, but the main reasons for choosing one above the others related to the "added value".

DIALOG presents the information as supplied, while I.P. Sharp and Control Data each add further information such as ratios and aggregates, and Control Data performs common-size calculations. The 2 latter systems perform currency changes to enable easier comparison of relative size.

Several new files are either under preparation or just available. Both DIALOG and I.P. Sharp cover British and European companies to some extent.

A Japanese file on Control Data and Singaporean/Malaysian and Canadian files on I.P. Sharp are also clear signs that this trend to on-line commercial databases is becoming universal.

Dialog and I.P. Sharp have no up-front charges, while Control Data demands a minimum $100 a month.

Ausinet access is a less expensive $25 a month for some unique information.

However, company files tend to have royalty charges attached and these are handed on directly to the user (typically, a full US company report is about $US10 on most files).

I.P. Sharp can assign dedicated passwords that attract a flat rate of $A60 an hour, including telecommunications and processing charges.

To use DIALOG, one must pay separate telecommunications charges to OTC, then database access charges to DIALOG ranging from $US65 to $US125 an hour.

The one approach by database suppliers that I regret particularly is the placement of a high upfront fee on an individual file.

This is the case with the Japanese file (NIKKEI) on Control Data, and the Singaporean/Malaysian and Canadian files on I.P. Sharp. I am convinced that suppliers would attract marginal revenues that they would not otherwise gain if they instead charged occasional users some premium rate for data after simply validating their password for access.

Documentation is available from all database suppliers.

Some are more thorough than others but even the simplest list of codes (where these are used) can greatly enhance your searching capabilities.

Most are published in looseleaf form, and newsletters draw attention to the changes, but keeping up becomes a time-consuming task.

It is good practice to designate certain individuals or a team to become experienced.

Rosemary McLachlan is manager of the Research Library, Commonwealth Banking Corporation

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The benefits of buying local

Fast problem-solving and close-at-hand responsibility for products are claimed to be the major user benefits flowing from David Hartley Manufacturing's new Brisbane plant.

These claims were made by David Hartley, founder and chairman of the group, at the plant opening recently.

The plant builds the recently-released 3902 Hartley personal computer which, with HAPAS software, sells for $9,500 to accountants.

Hartley claimed that there were enormous advantages in buying a locally-produced product.

"Because now the ultimate source of knowledge about applications and systems software is here in Australia, the user can have problems rectified quickly," he said.

"Purchasers can deal directly with the people who developed the software. Problems can be ironed out in days or weeks, instead of the many, many months it can take when software is purchased from an overseas company.

"We take direct responsibility for all our computer systems."

Hartley also claimed that purchasers did not have the problems of long lead times for delivery and "no irritating and extended delays on software and maintenance."

The Queensland company says it is producing 200 computers a month at its 18,000 square feet centre. Other Hartley products are also being produced at the same site.

Hartley said: "We've just passed the full financial year of the Hartley group with $12 million in sales in Australia alone – $2 million of which came in May-June."

Hartley, 95% owned by the New Zealand Insurance Corporation through its holding company PAXUS (David Hartley has retained 5%), has 2,500 installations world-wide, in 16 countries including New Zealand, the UK, Hong Kong, Seychelles and Zimbabwe.

Hartley said his company's computers are processing accounts for 1½ million businesses around the world.

"Our success is concrete evidence that computers can be designed and manufactured in Australia, something I was told years ago could not happen," he said.

Australian content of Hartley computer hardware was 60%, and increasing as volume rose.

Of this, labour comprises 12%; the applications and system software is 100% Australian developed.

Hartley said he had "no problems" with the supply of components and parts, as in his 10 years of manufacturing computers he has established sound relationships with major overseas components suppliers.

Hartley claimed his product does "a lot more" than the IBM-PC for the business market. He attacked IBM on quality. "We don't skimp on quality, our dual-floppy disk PC has one controller for each drive, whereas the IBM-PC has one controller," he said.

"This means the transfer rate between our floppy disks is much faster. For instance, the *dBase II* software package run on the Hartley system is 5% to 14% faster than when it is run on the IBM-PC."

The Hartley computer system now runs the MS/DOS operating system and Hartley revealed that it will also be running UNIX by 1985.

Tastes change in diskettes

Business users are increasingly opting for doubled-sided, quad-density, 5¼ inch diskettes for their personal computers, according to one of the key manufacturers of diskettes, **Nashua Australia**.

Previous sales growth for single-sided, single density diskettes for Apple computers and double-sided, double-density diskettes for IBM-PCs, is slowing.

Tony Little, manager of Nashua's computer products division, forecasts an Australian market consuming 7 million diskettes this year. The market will comprise to 70 to 75% 5¼ inch and the rest 8 inch, diskettes.

Little notes that this would represent a 35 per cent increase on estimated sales last year of 5 million units worth about $25 million.

He says that this year the smaller 3½ inch diskette for the Macintosh from Apple will take off, with significant sales volumes expected by late in the year.

"Business users should determine for themselves key criteria such as quality and ultimate density to give them the very best value for their dollar," Little says.

From page 158

manager, John Winters, this is the first such agreement signed between a software house and a major accountancy firm and will give considerable impetus to the company's push into the US market.

Further news came in the shape of an announcement that Tandy Corporation (better known in Australia as Radio Shack) has signed a vendor agreement with Attaché and will market the range in both the US and Australia.

It was also announced that the company had raised $5 million of the $6 million in venture capital it has been seeking in the US and expected to have the remainder soon.

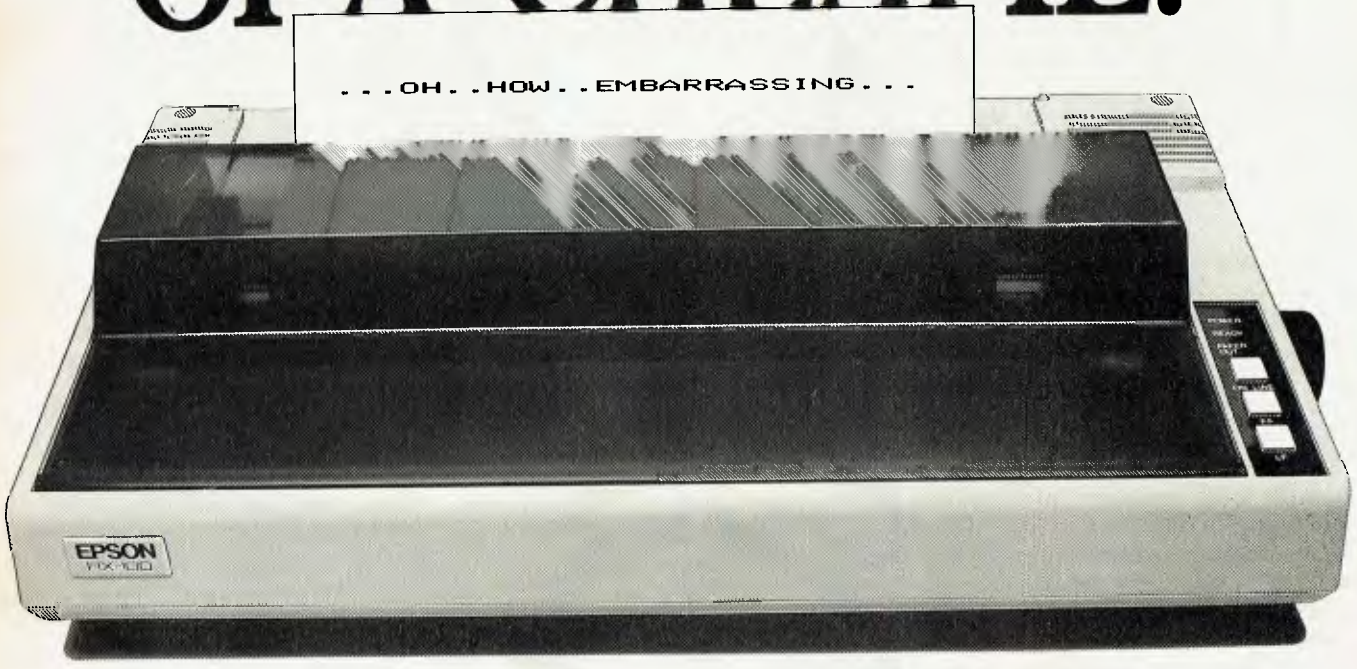
Then the new packaging was revealed. The software now comes in a genuine attaché case, complete with combination lock. Upon getting the package home, the user phones Attaché and, after registering as the owner of the software is given the combination to open the briefcase. This, Winters says, is so that Attaché will know who its customers are and can later check on customer satisfaction.

Included free with the software is a program called *Passport* which allows users to transfer data from Attaché to popular programs such as *Lotus 1-2-3*, *dBase II*, *WordStar* and *MultiPlan*.

Prices remain the same at $775 for all single modules except invoicing and the 2 business pacs are still available and offer a useful saving.

For existing users, Attaché will also upgrade the software for a nominal fee.

AN EPSON RX-100 PRINTER FOR THE PRICE OF A "CHEAPIE."



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Australia Moves Into The Big Time

Australia lacks a national policy for on-line electronic information retrieval and so far it has been a notable absentee from international meetings on the subject. But moves are afoot to change this. Joan Morrison backgrounds the current action:

On-line information retrieval came to Australia with an information bank called MEDLINE in the mid-1970's.

MEDLINE is produced by the US National Library of Medicine in Bethesda, Maryland, and made available in this country by the National Library, Canberra.

Following were the Lockheed DIALOG and System Development Corporation's ORBIT systems, both of which were originally marketed directly from California. Since then we have added our own AUSINET and CSIRONET to the many systems which have become available.

These are all centres of a wide variety of information files.

By late 1977 several of the major libraries in Australia had begun to use one or more of these systems.

In mid-1978 a meeting of all interested librarians was called at the NSW Institute of Technology, Sydney.

Today, the group has evolved into the NSW Online Users Group, a special interest group of the Library Association of Australia (LAA), attached to the NSW Information Section. Most of its members are also LAA members, but this membership is not a prerequisite for attendance at meetings, nor is being a librarian.

The committee consists of 3 joint convenors, a secretary and a treasurer – the convenors are Pamela Leuzinger of the Fisher Library at the University of Sydney, Amanda Russell of the Defence

Regional Library at Victoria Barracks, and myself. Our secretary is Rita Marshall of Wellcome Australia Ltd, and the treasurer is Deirdre Irwin, librarian for the Supervising Scientists for the Alligator Rivers Region.

A major concern to the group is that we in Australia have not made ourselves known internationally as on-line users. It is time that we began to do so. South Africa, with a much smaller population of on-line users, had a delegate on the organizing committee of the International Online Meeting, and also sent a speaker. Australia was notably absent from these activities.

In 1981 we set 3 objectives:

(1) To discuss, monitor and encourage the use and availability of on-line services.

(2) To liaise with similar bodies in other parts of Australia and provide regional representation to any appropriate national conference or body concerned with this issue.

(3) To work towards a national policy on on-line retrieval.

The first of these objectives is the only one that has been implemented in any way. We are interested in sponsoring a first Australian on-line meeting. This could be held late next year or in 1986. A national conference would provide a forum for the exchange of ideas among all Australian on-line users. It could also begin to form a framework for the creation of national on-line policy.

Our most recent meeting, in July, had as its subject the use of micro computers for on-line searching. John Kerrisk, of Kuring-Gai CAE, Sydney, talked.

Future meeting plans include subjects such as information broking, the Australian Bibliographic Network and videotex, although the dates for these have not been set.

Suggestions for speakers and subjects are always welcome, as are new members. Why not join in?

Joan Morrison is librarian, engineering library, University of Sydney.

Pilots Salute General Aviation

Software specialisation spells economies for the growing band of companies operating aircraft costing thousands of dollars an hour.

Is it a bird? Is it a plane? It's an Australian corporate manager moving at eight-tenths the speed of sound in a chartered HS 125 8-seater, $1,900-an-hour corporate jet.

Rumoured as more luxurious than the Lear jet, with every fitting you could possibly long for except fur-covered toilet seats, the HS 125 is one of around 15 types of small planes available for competitive charter by Australian corporations to speed their key people around Asia and the Pacific.

Many factors affect charter costings. Wind speeds, fuel density (which changes with temperature), the type of aeroplane; the price you think your competitor will charge for the same journey – all must add up to a price. That gets the work to keep your planes in the air.

A trained pilot or navigator can take up to a day with a calculator to come up with a price per kilo or price per passenger for a complex costing.

An ex Pan Am jumbo pilot, Bruce Whalen of Melbourne, has come up with a cost-saving software solution.

It's called *General Aviation* and runs on the Sharp MZ 3500 personal computer. It can answer in 5 minutes or less the costing questions that a $60-an-hour pilot or navigator may take hours to answer without a computer. *General Aviation* has a second benefit which appeals to pilots. Before a flight, all pilots are required by law to complete a "flight plan". This is submitted to the Department of Aviation for approval before take-off. The calculations can take up to 45 minutes. *General Aviation* can produce a flight plan in a few minutes that pilots can hand directly to the department for approval.

General Aviation means that charter companies can now give quotes over the telephone. It gives a price per passenger, or per kilo, over all legs of the journey after calculating speeds and current high-altitude winds. These are put into the system daily. You then put in the places the company wants to go to, and the software makes all the calculations relating to fuel cost, wind speed, aircraft type, and other variables.

John Kouvelis, PC marketing manager of Sharp Australia, says the Whalen package is one of many developments suitable for the Sharp PCs in Australia.

One of the first charter operators to use Whalen's software is Trevor Noblet of Pacific Airways at Melbourne. He is quick to cite the competitive costing benefits of the package: "It's had a major impact on our charter operations," says Noblet.

The ability to calculate fuel costs relative to windspeeds is what he likes.

"On a 4-hour flight time, winds can affect you by up to 30 minutes," Noblet says. "That's 15% of your fuel bill. People without a computer would just guess the wind speed and the price."

General Aviation lets Noblet also cost a number of different aircraft and compare their performance over the same route. This makes for useful industrial espionage: "We know our competitor's prices down to the last dollar," says Noblet, who costs not only his own HS 125, but also a competitor's Lear Jet as well as the Merlin, the Falcon, and the Westwind.

The three elements of the software are: Charter Quote, Flight Planning, and Route Study.

With Charter Quote you take the information over the phone, and type it into the computer while you are talking to the caller. You then get an instant quote for 4 different aircraft in your fleet over the routes your customer wants (or your competitor's costs).

cost per seat

You get on-screen the cost per seat, cost per passenger, total cost, times between each point in the routes and other information. You may program 2,500 destinations into the system by keying in latitude and longitude for that location and giving the location a short code name. The software comes with 2,500 Australian destinations. You can replace these to suit your needs.

The Flight Planning component lets you select aircraft type (specifications for up to 20 may be held).

Route Study lets you analyze route details in relation to the capacities of the 20 different aircraft, and presents results in terms of gross and nett income per passenger, per kilo and per segment, over weekly, monthly, yearly, or other times.

General Aviation costs $1,200, and needs 128 K of memory. It comes with Whalen's suggested hardware arrangements from $2,750 (Sharp MZ 3500, 128 K, and one disk-drive) and variations up to $7,000 (e.g. with 256 K, colour screen and printer, or 10 MB printer and green screen).

It is currently only available for the Sharp MZ 3500.

Aviation Computers is headquartered at Moorabbin Airport, PO Box 446, Cheltenham, Vic (03) 580 9556.

GM-H Stock Race Speeds Up

GMH dealers find videotex not only accelerates information flow but helps improve customer relations.

Early last year, GMH-Holden's became one of the first in the highly competitive automotive industry to plump for a closed-user group Videotex system.

Now, some 18 months later, more than 85% of GMH's roughly 420 dealers nationwide are hooked up to the system. GMH's foray into Videotex appears to have met with considerable success, not only in speeding up the flow of information so necessary to the industry, but also in greatly improving customer relations.

One dealership that claims to have reaped Videotex's demonstrable benefits is Suttons-GMH in Chullora, south of Sydney. One of four Suttons car retail outlets in Sydney, Suttons Chullora is among the 13 largest dealerships in Australia in terms of new cars sold, and the second largest in New South Wales. Its 75-staff, seven-acre operations move more than 1,000 vehicles a year – about 20 a week.

Suttons Chullora was one of 10 dealers chosen by GMH to go on its pilot Videotex system in early 1983, according to Denys Gillespie, Suttons general manager. "Since that time, the system's capabilities have expanded 5-fold and it has become an almost indispensable part of our operations," he says.

In a contract entered into with GMH-Holden's, Visionhire (Australia) supplied the terminals and peripheral equipment for the carmaker's Videotex experiment. With over 90% of the market in Videotext terminals, Visionhire is a well-established name in this new technology, with considerable experience even in the UK where Videotex first saw commercial application.

For the GMH dealers involved in Videotex, its most obvious and immediately perceptible benefit was as a greatly improved stock locator system.

Suttons Chullora's Denys Gillespie. "Videotex helps customer satisfaction".

"If a customer came in, for example, asking for a red car with blue trim, and we didn't have any on hand, it would have taken our salesman the better part of a day calling up all the dealers throughout Australia to find one that had that particular model," Gillespie said, "On Videotex, it is simply a matter of one phone call, the push of a few buttons – and the system will immediately show you every single dealership that has a red car with blue trim, all in a matter of minutes."

Denys Gillespie said the system's expanded capabilities have resulted in even more benefits: "With some 300 cars on order at any one time – each of these in various stages of production – it would ordinarily have been impossible for us to tell a customer at what stage of production the car he had ordered is in, or when he can expect it, or why there has been a delay, if there is.

"Delays can be caused by any one of a number of reasons: a service problem in a parts manufacture, or a sourcing problem, say because of a general strike in a factory overseas from which we source a certain part.

"With Videotex, we are not only able to trace the whereabouts, in terms of production, of every single car on order; we are also, in case of any production setback, able to tell the customer the exact reason for the delay."

This has resulted, Deny Gillespie claims, in a "marked improvement" in customer relations.

With the already expanded capabilities enjoyed by GMH's Videotex system, Gillespie believes its full potentials can be tapped even further. For one, its use as a stock locator system is presently limited to identifying the dealers that have a specified vehicle on stock. The sales representative then uses ordinary telecommunication lines to contact the dealer and complete the transaction.

Soon, even this communication will be done on the Videotex system. "We will be able to make the transaction, and accomplish a DSS (dealer stock swap) if that dealer in turn wants a specific car that we happen to have on hand, entirely through Videotex," says Gillespie.

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Yulara resort, Ayers Rock... a blend of the traditional and spectacularly contemporary.

Tallgrass Tames The Territory

The new tourist village at Ayers Rock needed the very latest in technology. But some very ancient problems had to be overcome before it could all be made to work.

In the centre of Australia where extreme temperatures, dust and power problems abound, Tallgrass Technologies has won an important new client, Yulara Developments, the prime mover behind the $150 million holiday resort at Ayers Rock.

Yulara has just acquired an IBM XT and 2 Personal Computers, plus 3 Tallgrass hard disk/tape systems, from Sydney dealer Computerland.

Yulara's administrative accountant, Phil Beale, believes the Winchester subsystems, manufactured by the Kansas-based parent company, were the best choice available.

"When you're operating a project of these dimensions... for obvious reasons, we needed to have computerization of our accounting systems," Phil said.

"The combinations of PCs and Tallgrass allowed us to do a host of things, such as setting up basic accounting systems, asset registers, management systems, financial models and those systems which we have developed for ourselves.

"A basic computer simply wouldn't have given us the capacity or flexibility to do our own thing. What we've effected with the Tallgrass drives has really taken us out of the realm of floppies."

Mike White, Yulara's financial controller, agrees. His first association with Tallgrass involved setting up a computer system for Corbond Australia, a sewing software supplier. That system proved a winner.

Outlining the history of the Yulara computer project, White said: "The original proposal was that, in the concept of Yulara, there was no facility for telephone communications. In due course, when Telecom had agreed to put in a microwave link, we planned to hook up on-line our 2 centres in Alice Springs and Ayers Rock.

"However, costs were substantial and consultants had already determined that a small mainframe or large mini weren't the way to go. So we looked at micros, like Apple and IBM, then looked at software, such as IAC.

"At the same time, we approached Computerland who gave us an IBM-PC ex stock. We had considered XTs but decided while they probably had enough back-up the floppies were a definite problem. That's when Tallgrass came into the picture."

Yulara's computerization has aroused considerable interest in Territory financial and accounting circles. Many accountants have visited the installation at Alice Springs where Yulara has established the IBM XT and a 12.5 megabyte Tallgrass unit, a backup IBM-PC and a 35 mb unit. An additional PC and 35 mb unit are at Yulara village at The Rock.

As a result of Yulara's success, both the overseeing authority, the Northern Territory Conservation Commission, and the State Treasury have ordered similar sub-systems. Talking about the State Treasury and their prospective 12.5 mb unit, Mike White says they're in the process of designing a hook-up to enable reporting to be done on a quarterly basis.

Special features of Tallgrass particularly suit it to the tough working conditions faced at Yulara.

Says Beale: "We have tremendous frustrations with power. The fluctuations can be very dramatic, although we do have battery-operated power packs and a voltage regulator to act as safeguards."

Hence the selectable options on a drive-by-drive basis have presented some ideal applications and saved opportunities. These include a read-after-write verification, memory cache, duplicate directory and dedicated landing zone.

Read-after-write verification, as the name suggests, ensures that information written onto the disk is the same as that sent from the controller. It takes a little longer to do a read and compare but when the data is really critical, as is the case at Yulara, it's an option that is absolutely necessary.

As for the duplicate directory, it's exactly that – a second copy of the directory on a reserved track. It provides data security by replicating every entry.

The last option, landing zone, is yet another safety feature to protect data from misadventure. With this feature the disk heads automatically move to an area on disk where no data is stored after 6 seconds of inactivity. Here, the heads can safely contact the disk surface with-

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IT'S EASY TO UNDERSTAND TODAY'S COMPUTERS

Yulara resort with behind it the unmistakable dome of The Rock – photographs by Barry Skipsey, Northern Territory Tourist Commission.

out danger of destroying data.

The idea is that in a power or mechanical failure such as those experienced at The Rock – where a generator is community-shared and therefore subject to violent power surges – the chances of heads scraping tracks with valuable information will be greatly reduced. There may be a small price to pay in performance. It takes time to move the heads to the landing zone and to return them to where you want to read and write, but as Phil Beale points out that's nothing compared to the terror of data loss.

Yulara, which is on the edge of the Uluru National Park, has been in the making for the past 10 years. It will near completion with the opening of a 250-room, $34 million Sheraton-Ayers Rock Hotel in November.

This will complement existing accommodation such as the 100-room Four Seasons resort, Ayers Rock Lodge, camping grounds for 3,600 campers, holiday cabins, taverns, swimming pools, shopping and community squares and a central visitors' centre.

The complex has been designed as a spine of low-rise linked buildings curving around the base of sand dunes, and blends contemporary architecture with traditional outback settings. It's fully self-contained, serviced by the new Connellan Airport, and will cater for an anticipated tourist population of 5,000 people a day.

The new resort has meant that the dilapidated and inadequate facilities scattered around The Rock can be removed and rehabilitation of the delicate park environment begun. The desert ecosystem around The Rock can now be protected from the over-growing hordes of visitors.

The Rock is a tremendous drawcard. It will pull in some 131,000 tourists in the coming financial year and, by 1990, double that number.

With a population of that size passing through Yulara, administration could become something of a nightmare. "But now that everything's computerized we can do the whole administration from Alice Springs, with the Yulara Corporation in Yulara acting like a municipal council," White said. "It's probably the most unusual operation outside of any capital city."

White adds that it has been necessary to make adjustments to the environments housing the machines.

"The original offices we were in had straight evaporative coolers and the units were a little susceptible to the humidity," he said. "They weren't at all happy. But in Alice Springs we've now upgraded to the normal reverse cycle conditioning so that's OK. It's over in Yulara, where the offices are still a bit primitive, that there's still a problem."

However, as the pressure on construction facilities winds down, any further hitches can be ironed out.

Tourism is the Territory's third largest industry. Yulara will undoubtably play an important role in boosting this industry both by enormously increasing facilities and by opening up the inland to the lucrative international tourist trade.

A sound administrative foundation with computerized support is a big step towards making the Yulara resort the successful proposition it aims to become.

Magnum Goes Full Bore

The Magnum portable computer from Dulmont Electronic Systems of Sydney is well worth considering, John Banks found

My initial reaction to the Magnum portable computer was to wonder if it was a toy or, as claimed, a powerful personal computer.

Some considerable time later I know that the latter claim is justified – the Magnum is indeed a very powerful, incredibly small, portable computer.

Considering that the system was designed and manufactured in Australia, it deserves a great deal of support since it more than adequately meets all the requirements that personal computer users may have of a system and, in addition, offers a great deal more than imported competitive systems. It sells for $2,495. This includes tax, software and 3-months warranty.

It comes complete with full-size keyboard and inbuilt screen offering dot matrix LCD display with 8-line, 80-column, usable display area. It is supplied as a basic unit with 64K RAM upgradeable to 256K, plus 128K of internal ROM. The system has 4 internal storage areas, or vertical disk drives, configured as drives A, B, C, and D.

Drive A is the internal 128K of ROM which stores basic software supplied with the system; drive B is a plug-in memory expansion pack, as is drive C and drive D is part of the internal CMOS memory on which the user can store active files.

Basic software supplied includes a diary planner incorporating a world time clock; address and phone book, which enables the user to list names and addresses of business and private contacts and recall same by definition symbol or keyword; and word processing and spreadsheet capabilities.

In addition, the system has communication facilities for interface to other systems.

My Magnum was extremely portable, weighing less than 4 kilos. It is designed for office and home use. Being so portable, the unit will fit most medium-size briefcases.

The Australian-made Magnum

THE SYSTEM again could be made more portable as currently no carry handles are supplied.

As the system was only available with standard features, the capability of its supporting external devices, such as monitor or printer, are not known, although the manufacturer says input/output devices can be fully supported.

After spending some time with the system the major fault I found was with the quality of the LCD display, though this could be a trade-off. The system uses internal ni-cad batteries (it also runs on 240 volts) and any other type of display would probably require more power.

The technical information supplied with the system also needs to be revised completely so that first-time users can properly comprehend the features of the unit.

The system again could be made more portable, as currently no carry handles are supplied.

The above are relatively minor criticisms and mustn't be over-emphasized in comparison to all the very useable features the Dulmont Magnum offers.

I believe the Dulmont Magnum personal computer is a very powerful, well-designed system and depending on pricing structures and available options, should prove very saleable.

John Banks is a Sydney hi-tech consultant.

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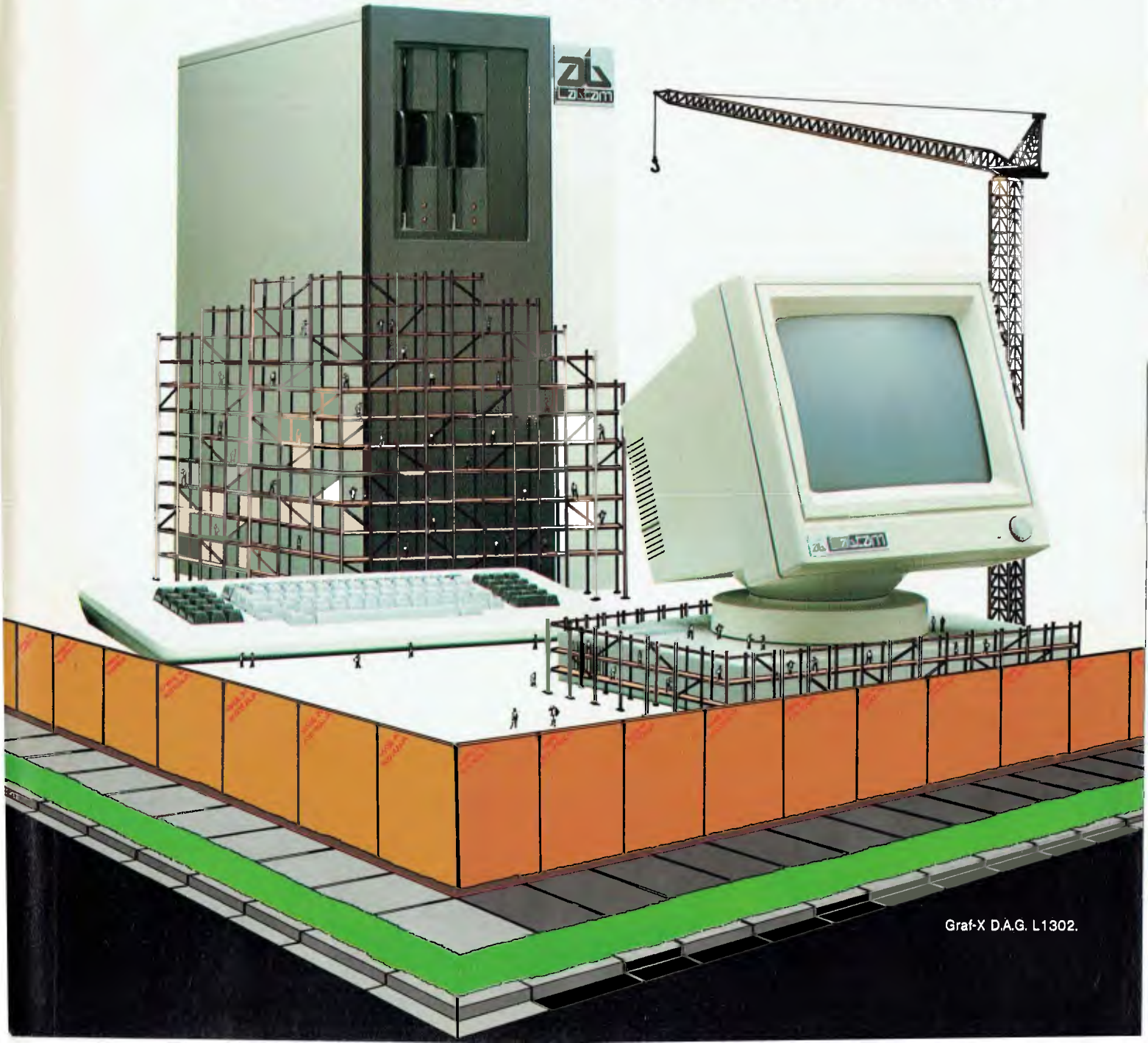

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